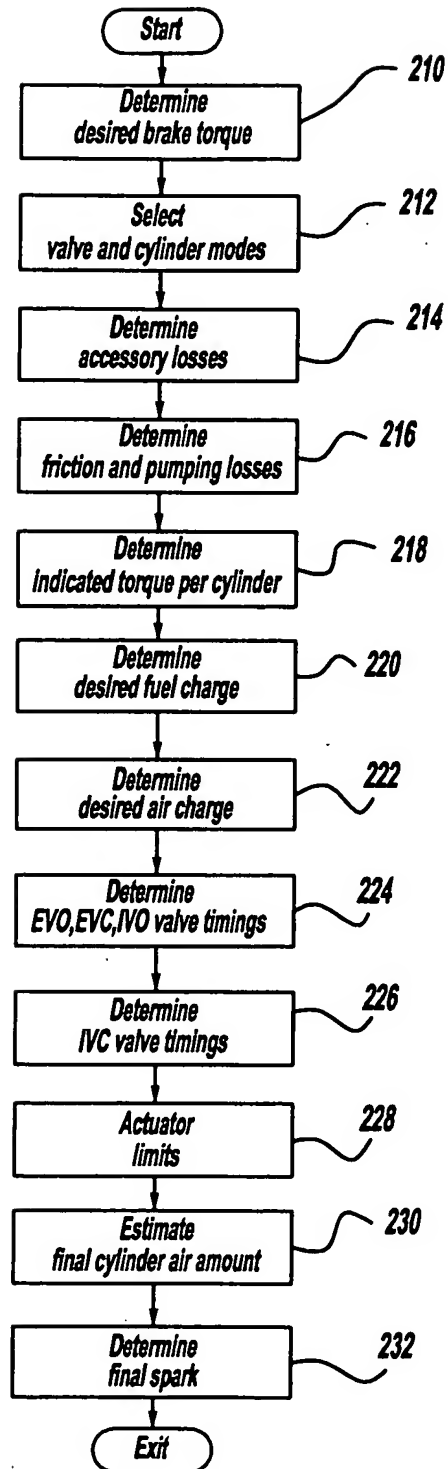
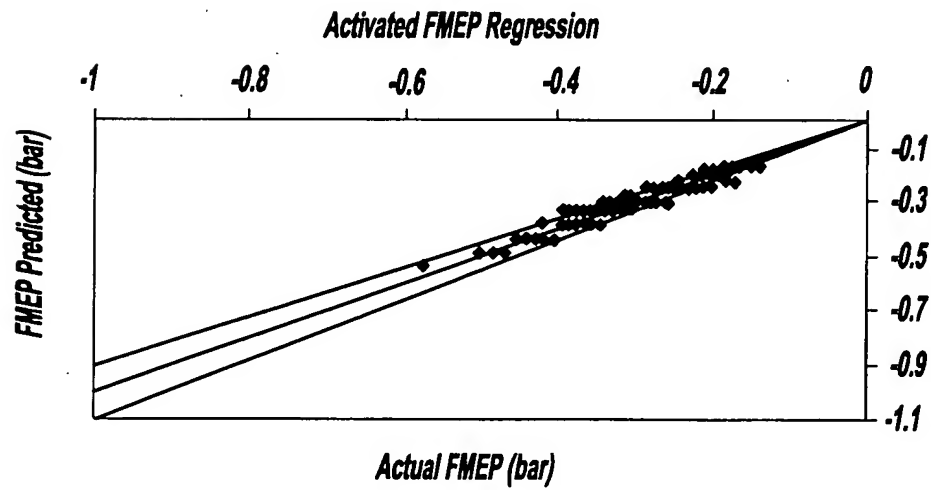
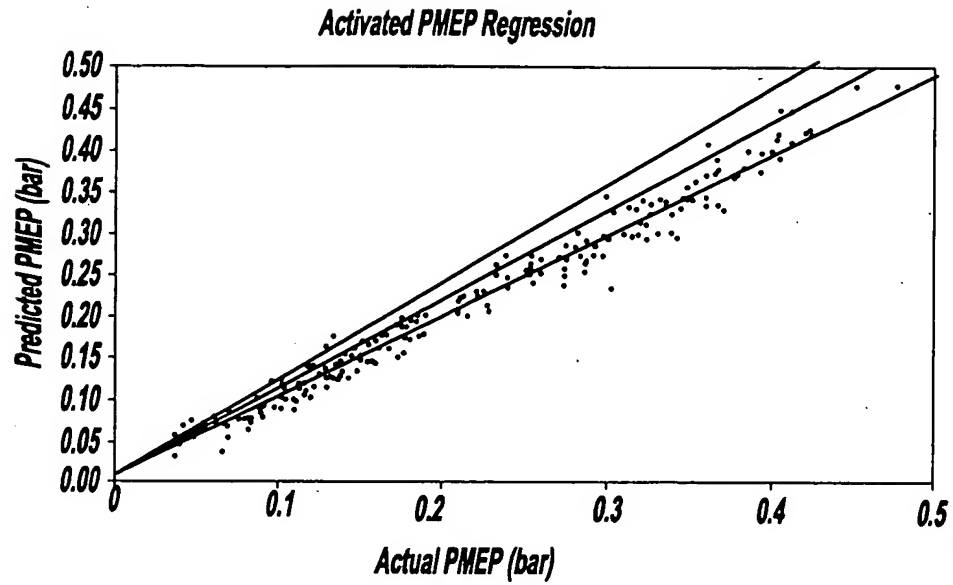
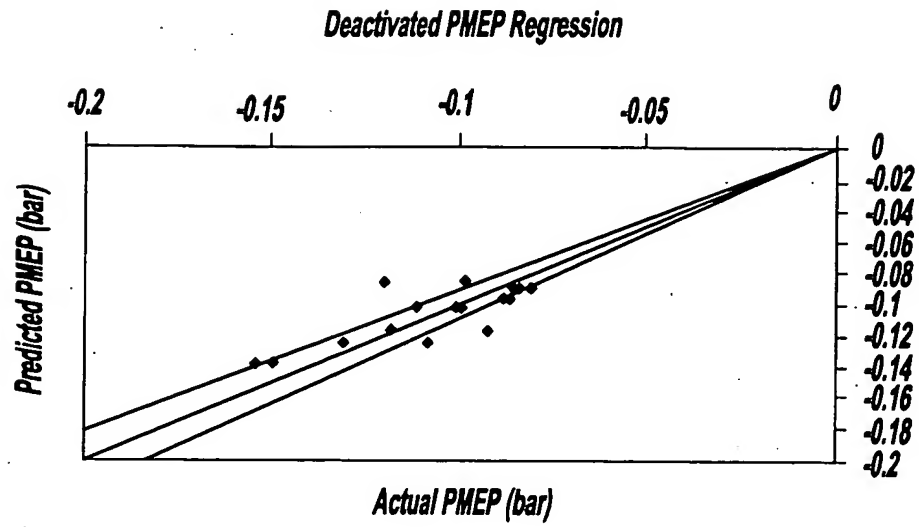
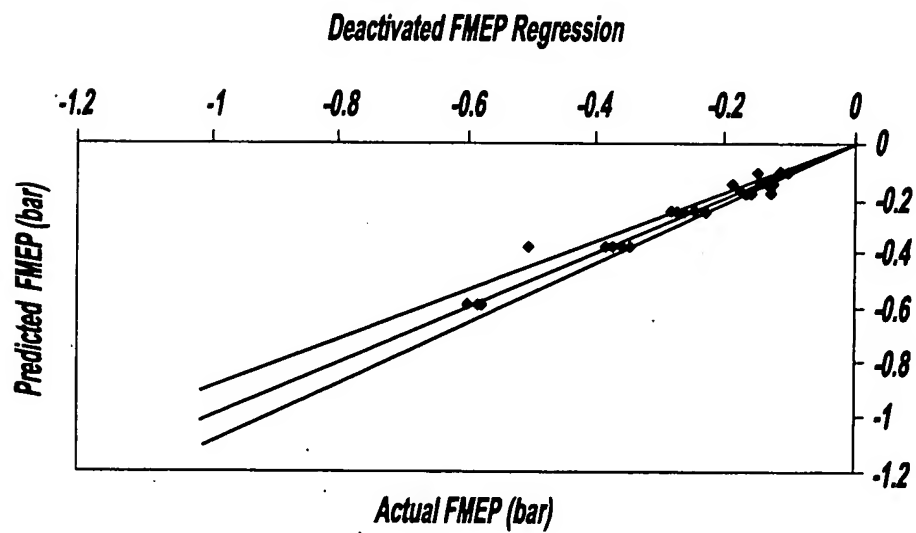
**FIG-1**

**FIG - 2**

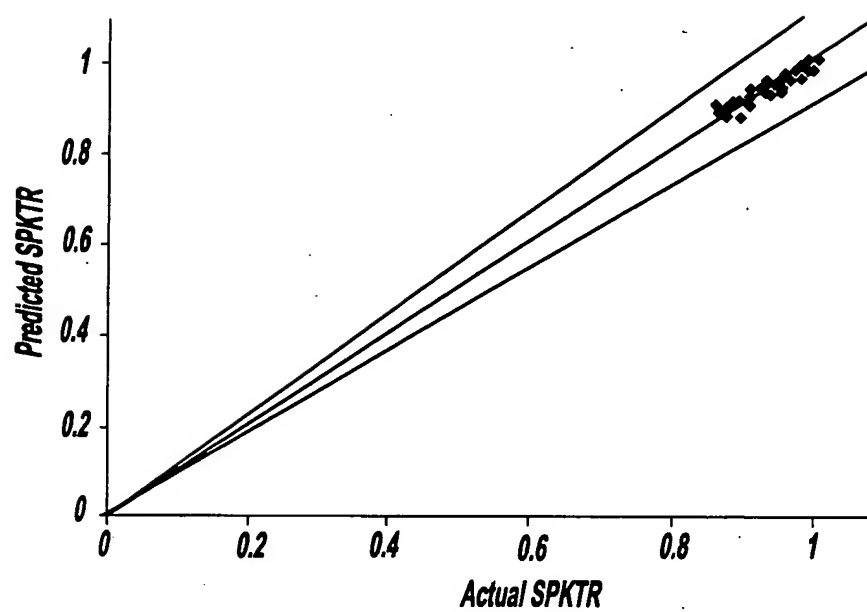


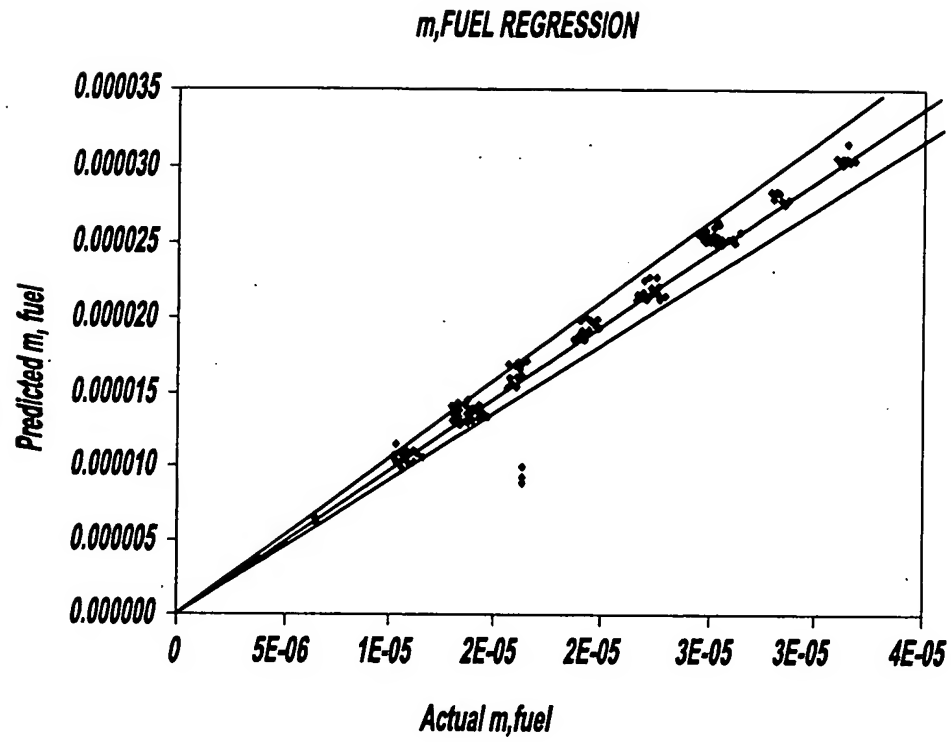


**FIG - 5**

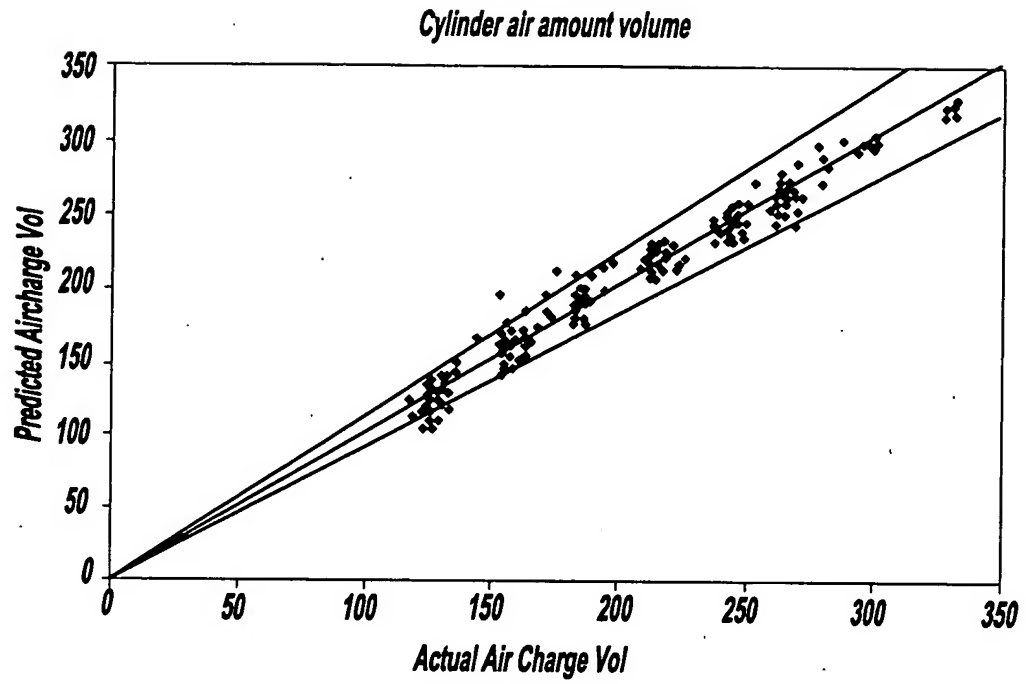


**FIG - 6**

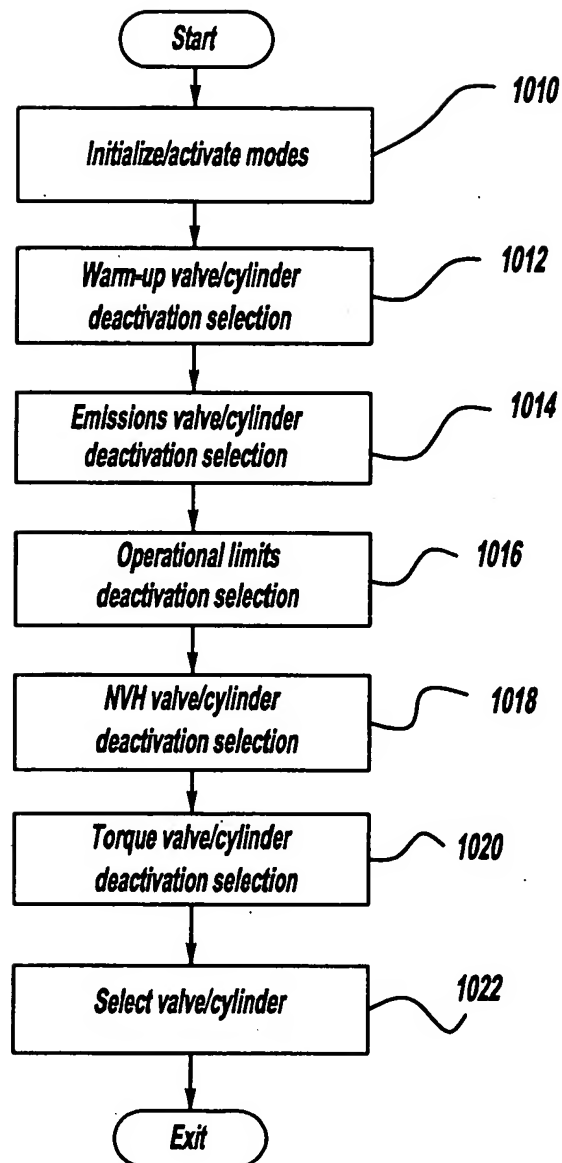
*Spark Retard Torque Reduction Regression***FIG - 7**

**FIG - 8**

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**FIG - 9**

**FIG - 10**



COLUMN 0                      COLUMN 3

0    3

↓ DECREASING TORQUE ↑

|           |      |      |      |      |       |
|-----------|------|------|------|------|-------|
| V2        | 1    | 1    | 1    | 1    | ROW 3 |
| 12-STROKE | 1    | 1    | 1    | 1    |       |
| V4        | 1    | 1    | 1    | 1    |       |
| V8        | 1    | 1    | 1    | 1    | ROW 0 |
|           | DIDE | DIAE | AIDE | AIAE |       |

→ DECREASING TORQUE →

**FIG - 11**

COLUMN 0                      COLUMN 3

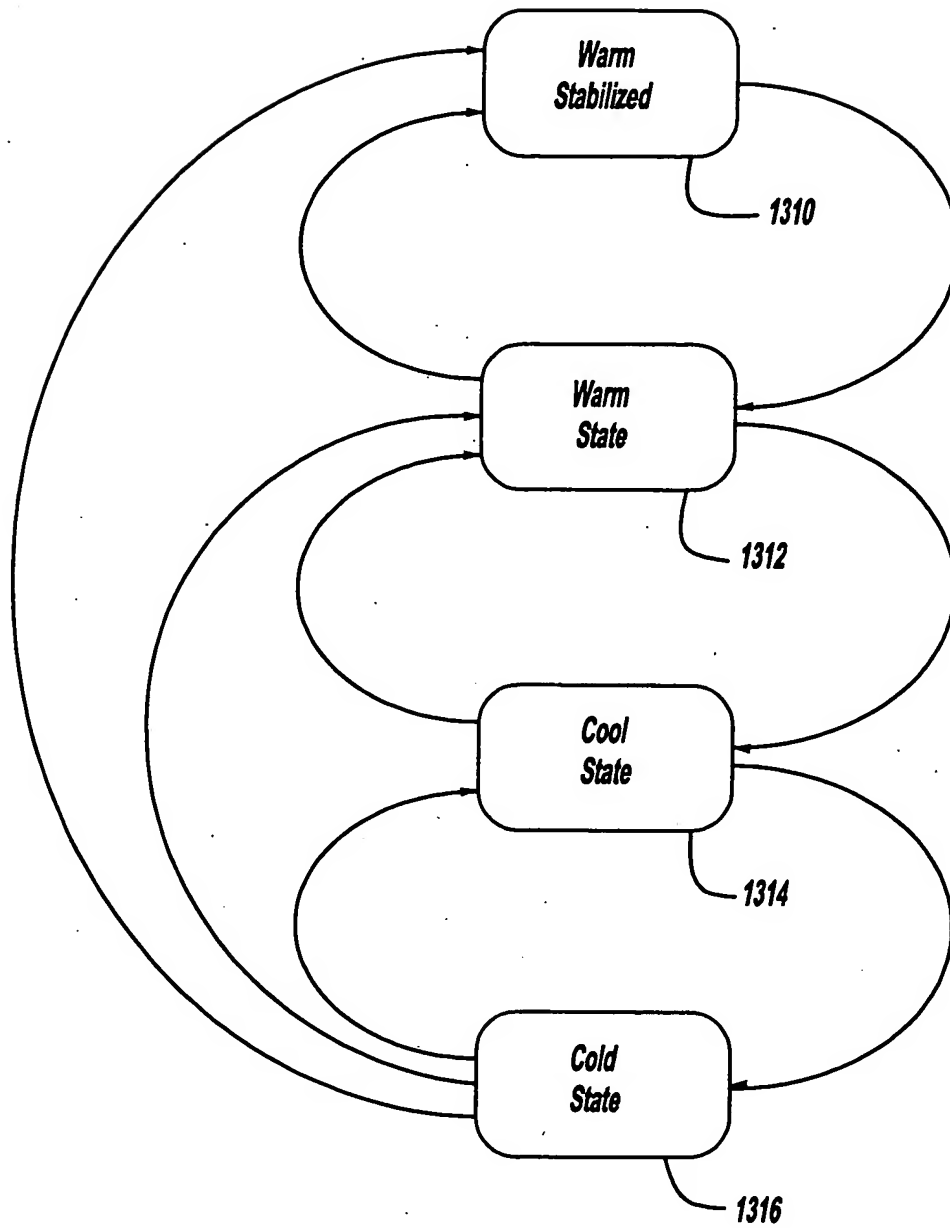
0    3

↓ DECREASING TORQUE ↑

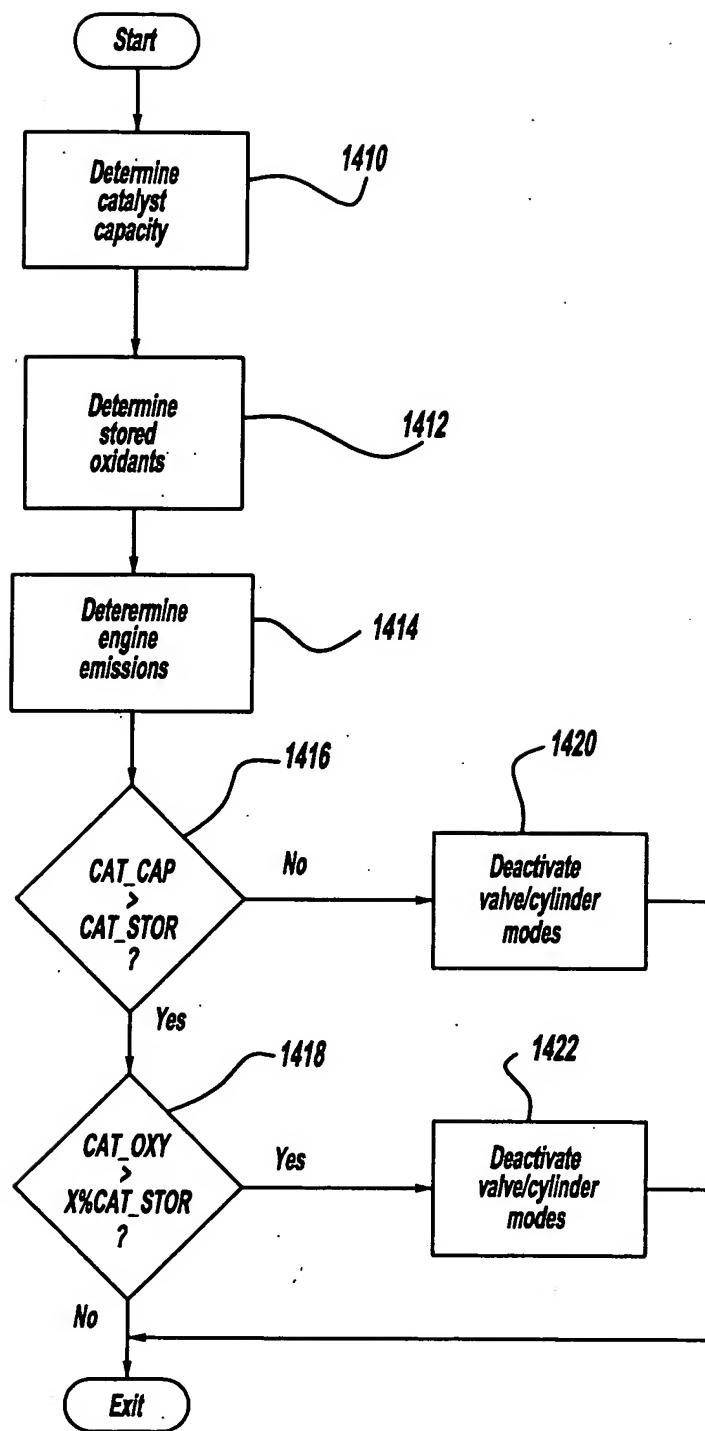
|           |      |      |      |      |       |
|-----------|------|------|------|------|-------|
| V2        | 0    | 0    | 0    | 0    | ROW 3 |
| 12-STROKE | 0    | 0    | 0    | 0    |       |
| V4        | 1    | 1    | 0    | 0    |       |
| V8        | 1    | 1    | 1    | 1    | ROW 0 |
|           | DIDE | DIAE | AIDE | AIAE |       |

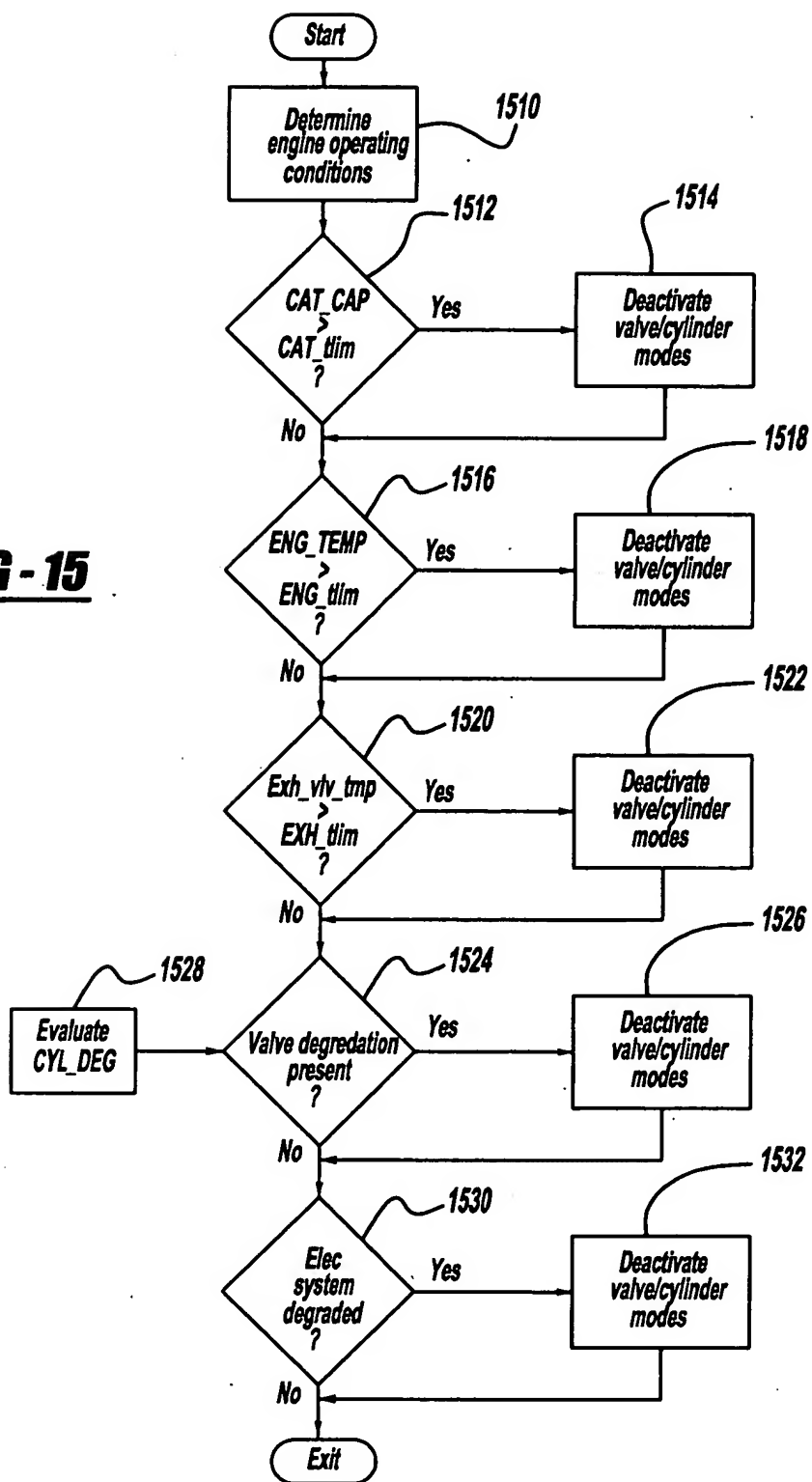
→ DECREASING TORQUE →

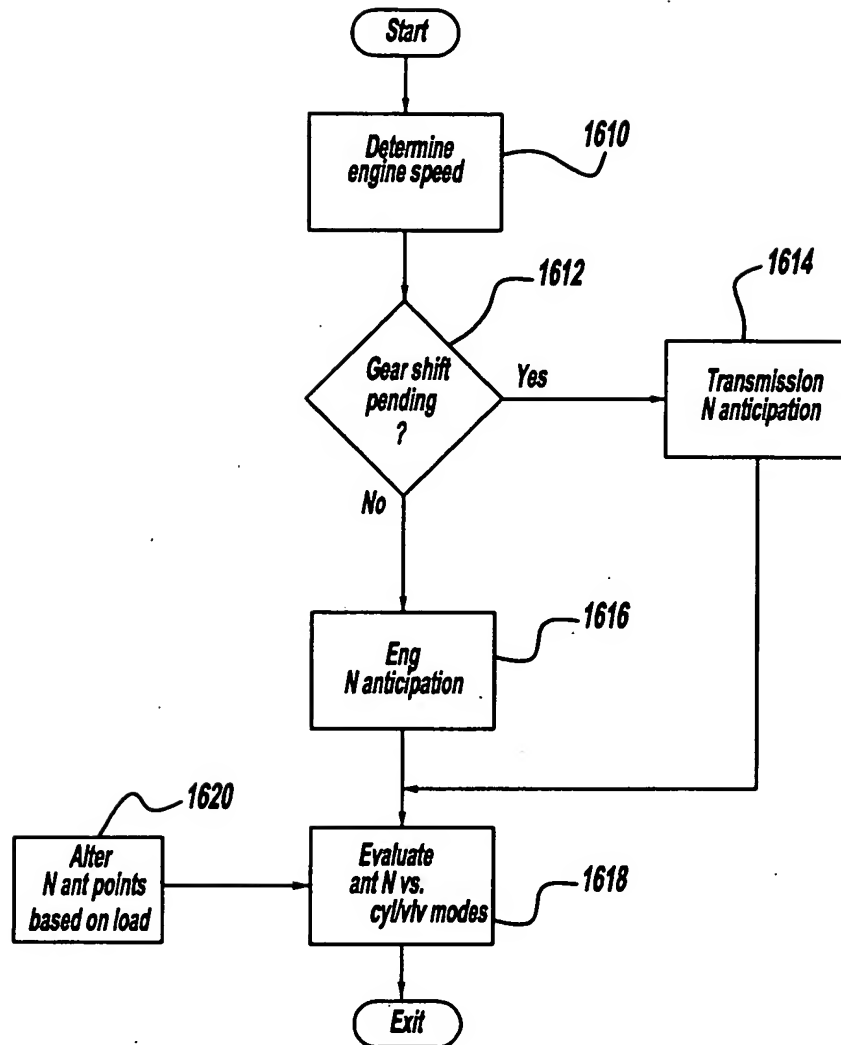
**FIG - 12**

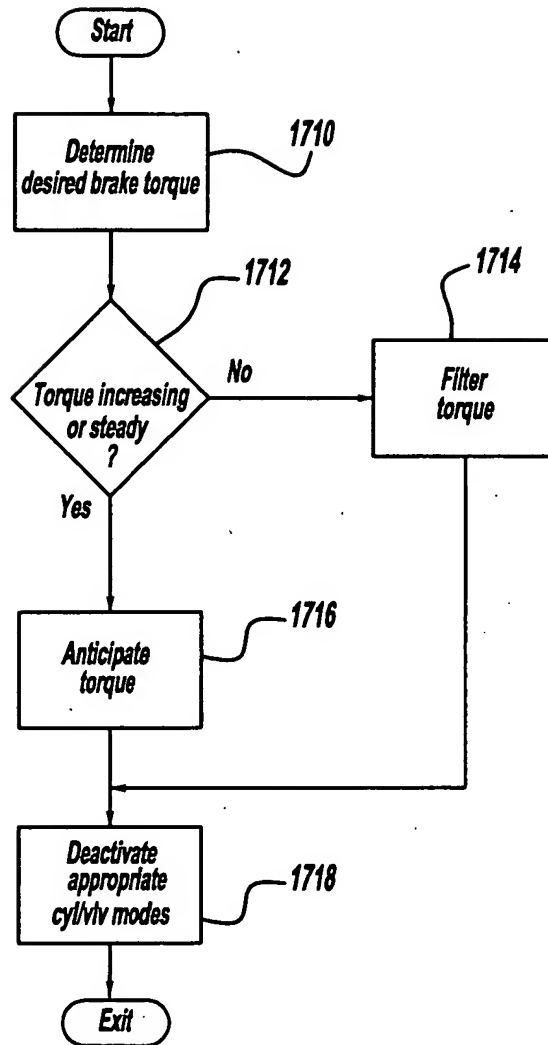


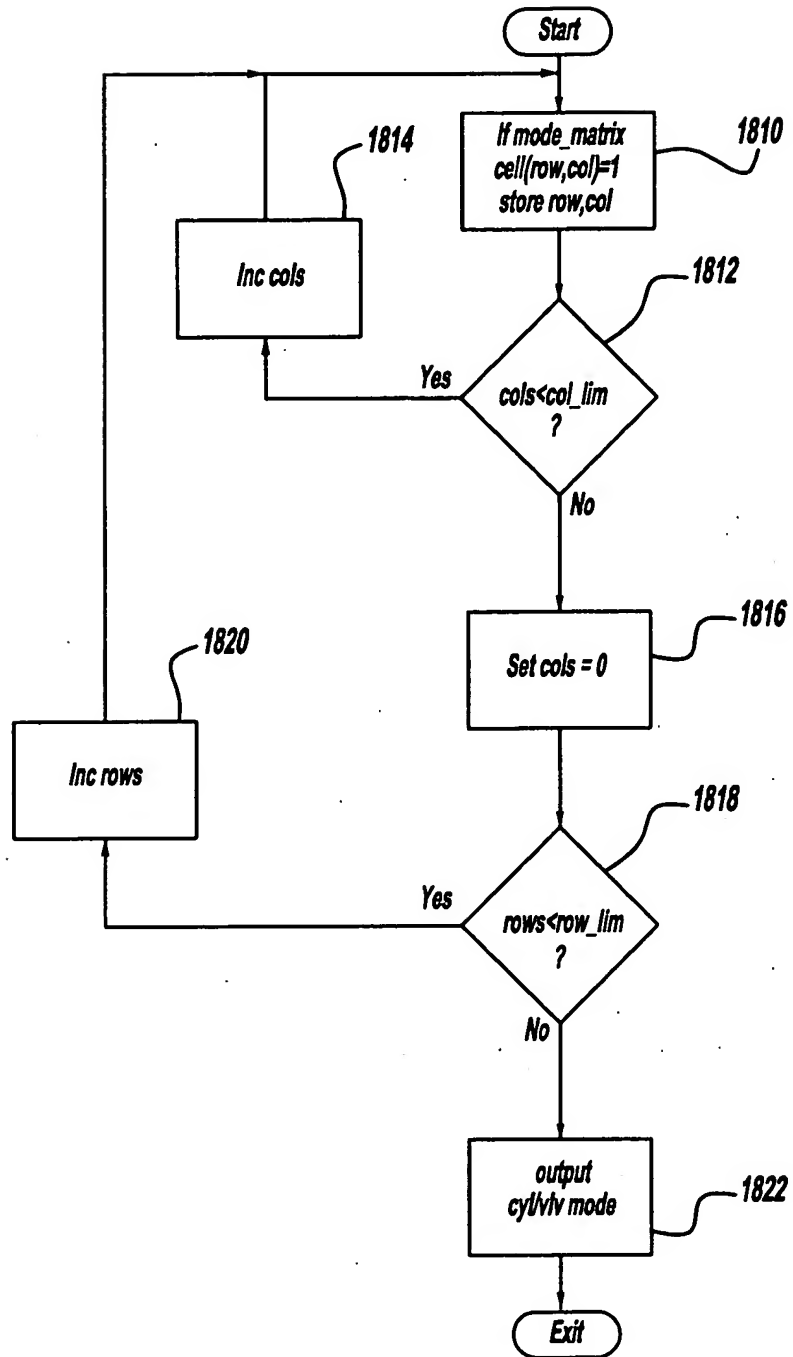
**FIG - 13**

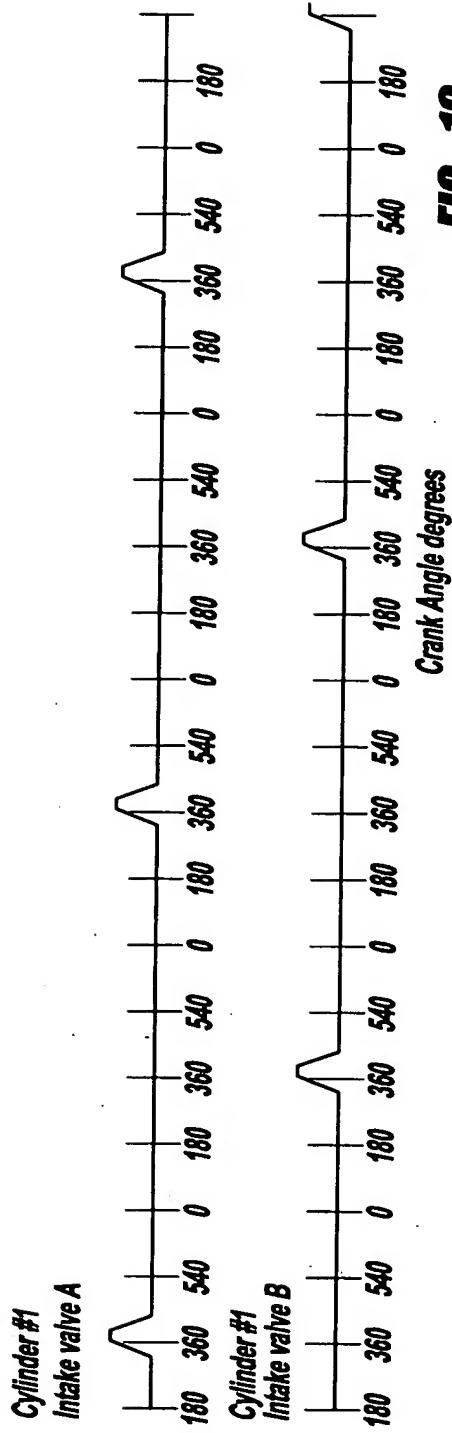
**FIG - 14**

**FIG - 15**

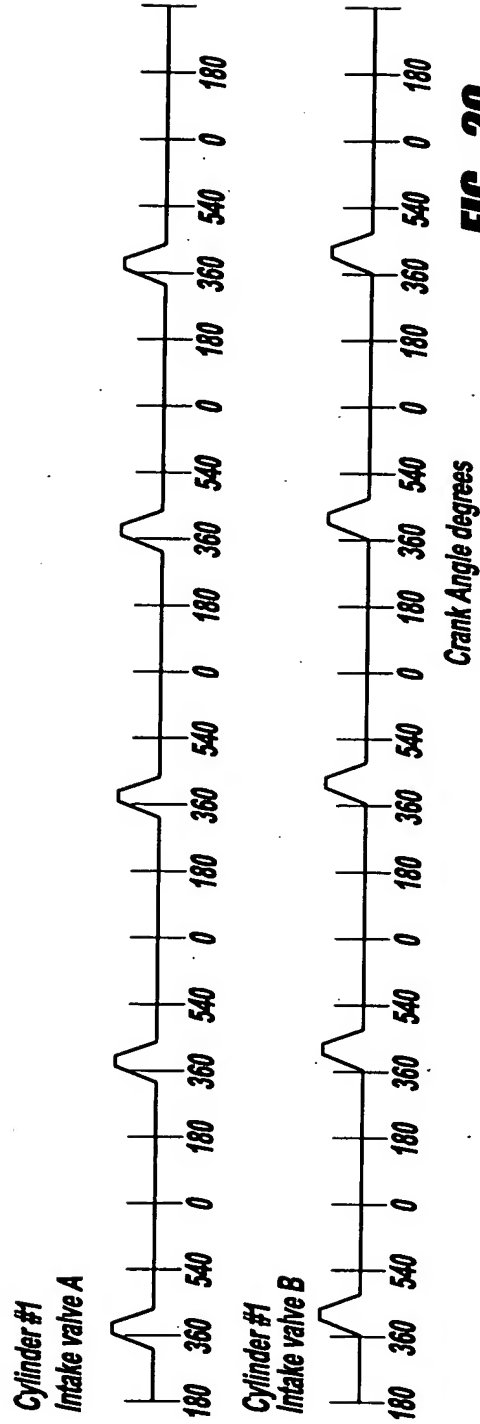
**FIG - 16**

**FIG - 17**



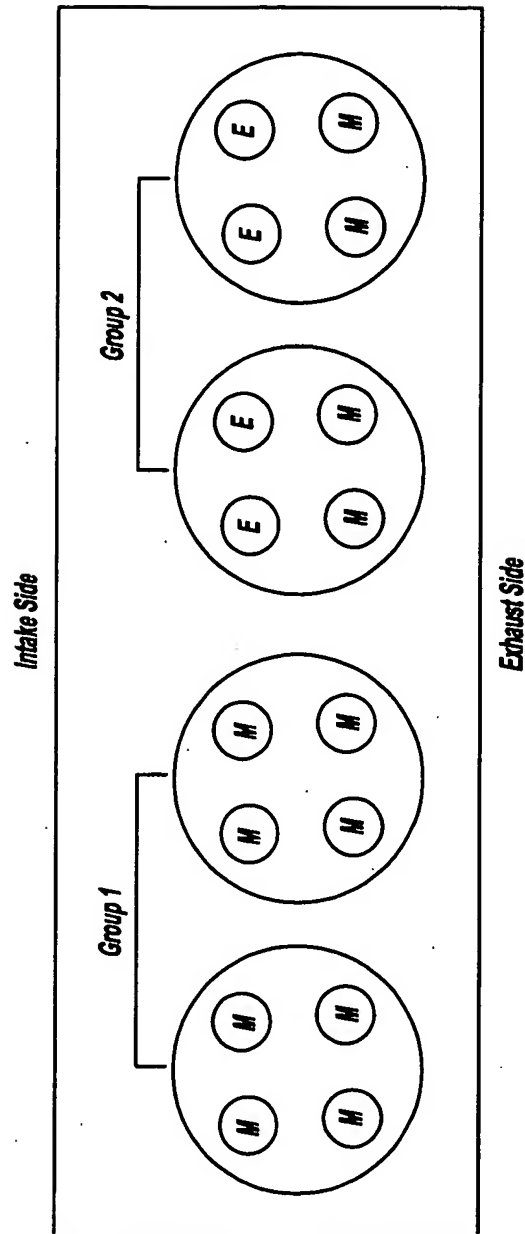


**FIG - 19**

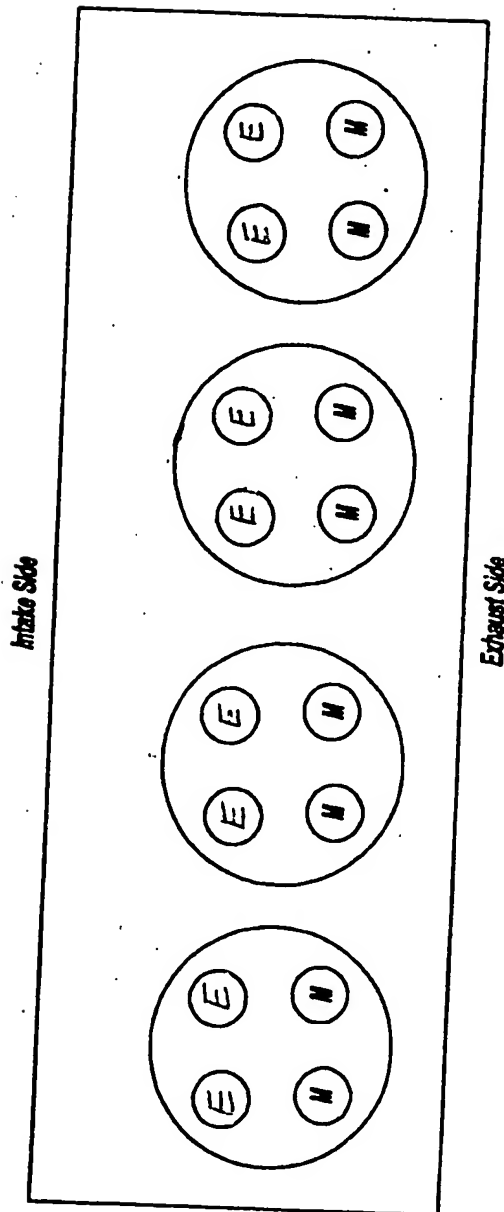


**FIG - 20**

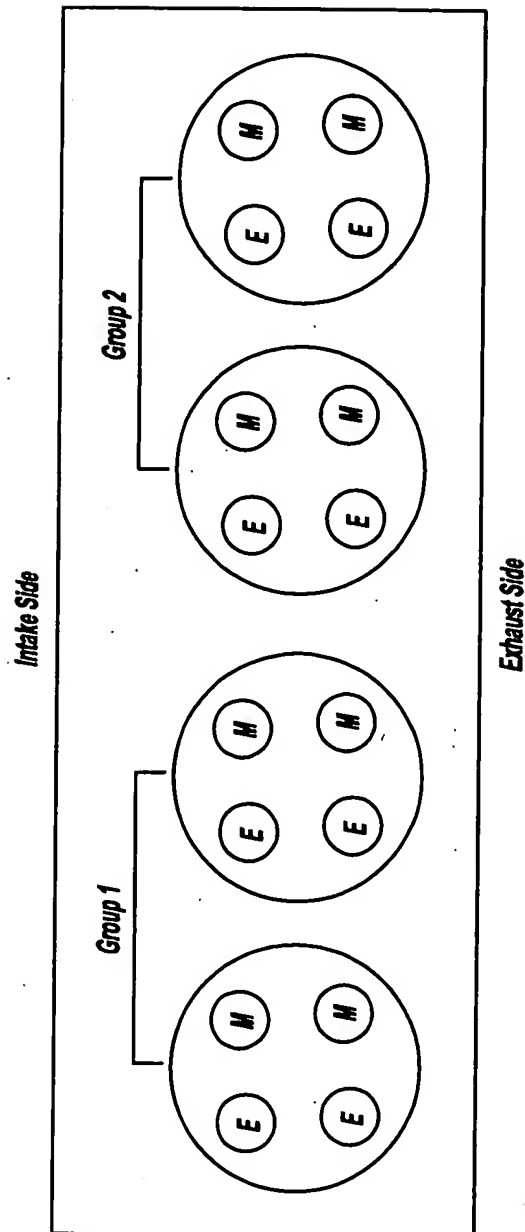




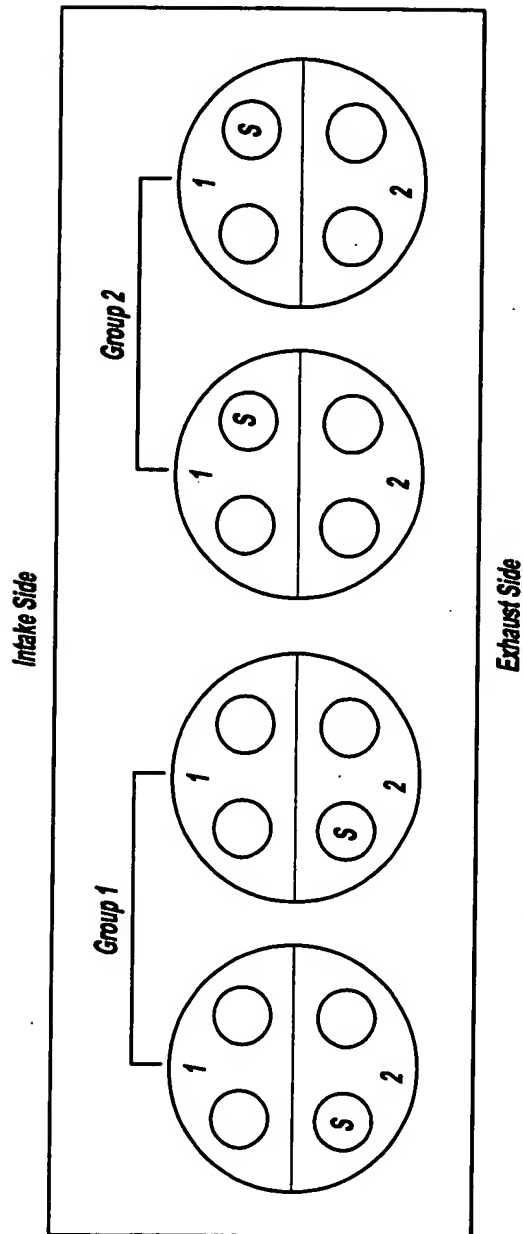
**FIG - 21**



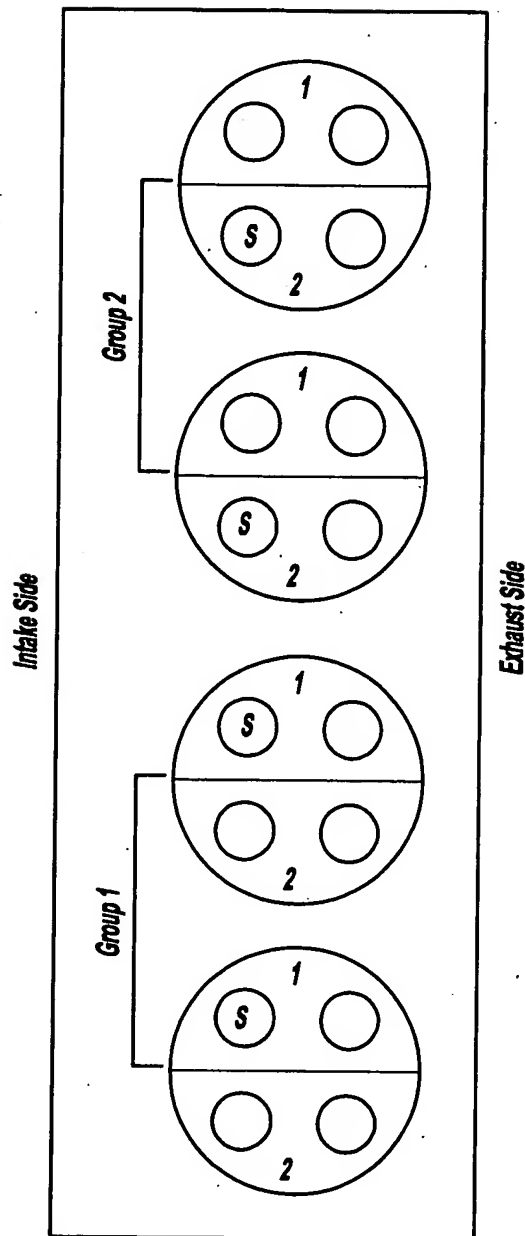
**FIG - 21A**



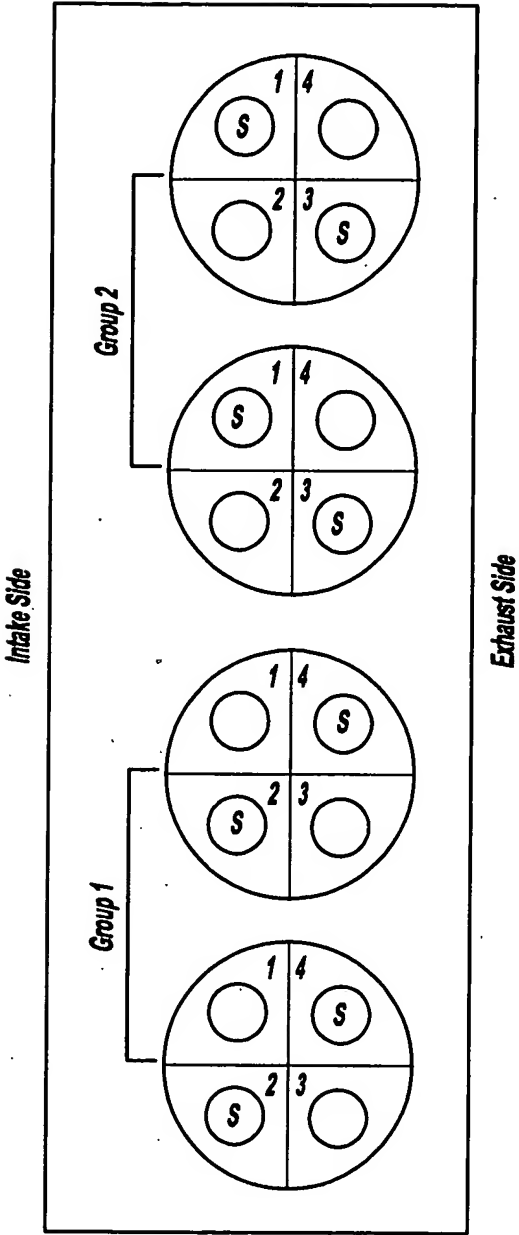
**FIG - 22**



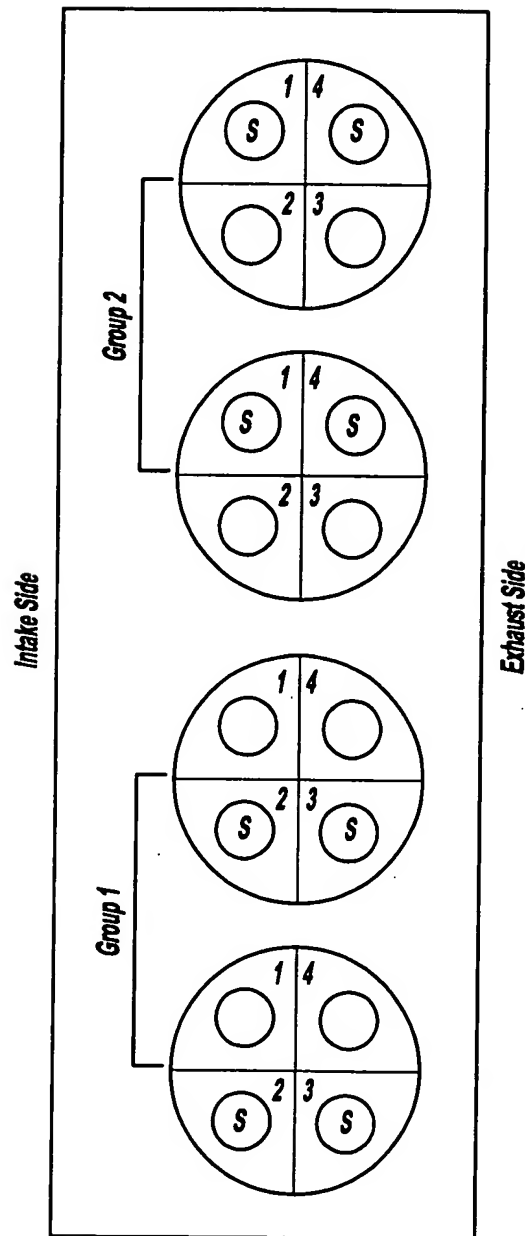
**FIG - 23**



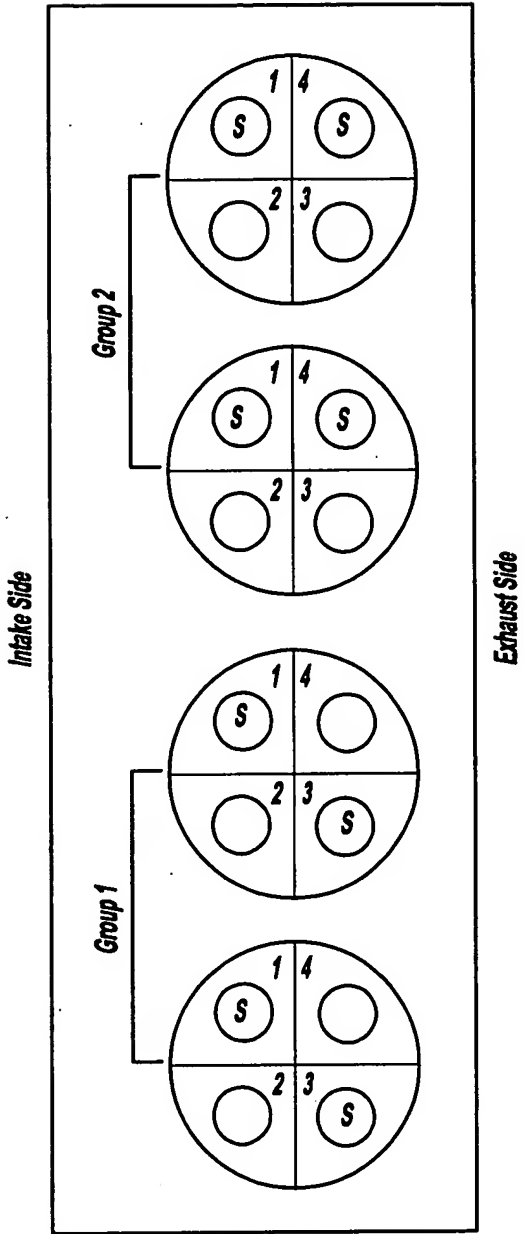
**FIG - 24**



**FIG - 25**

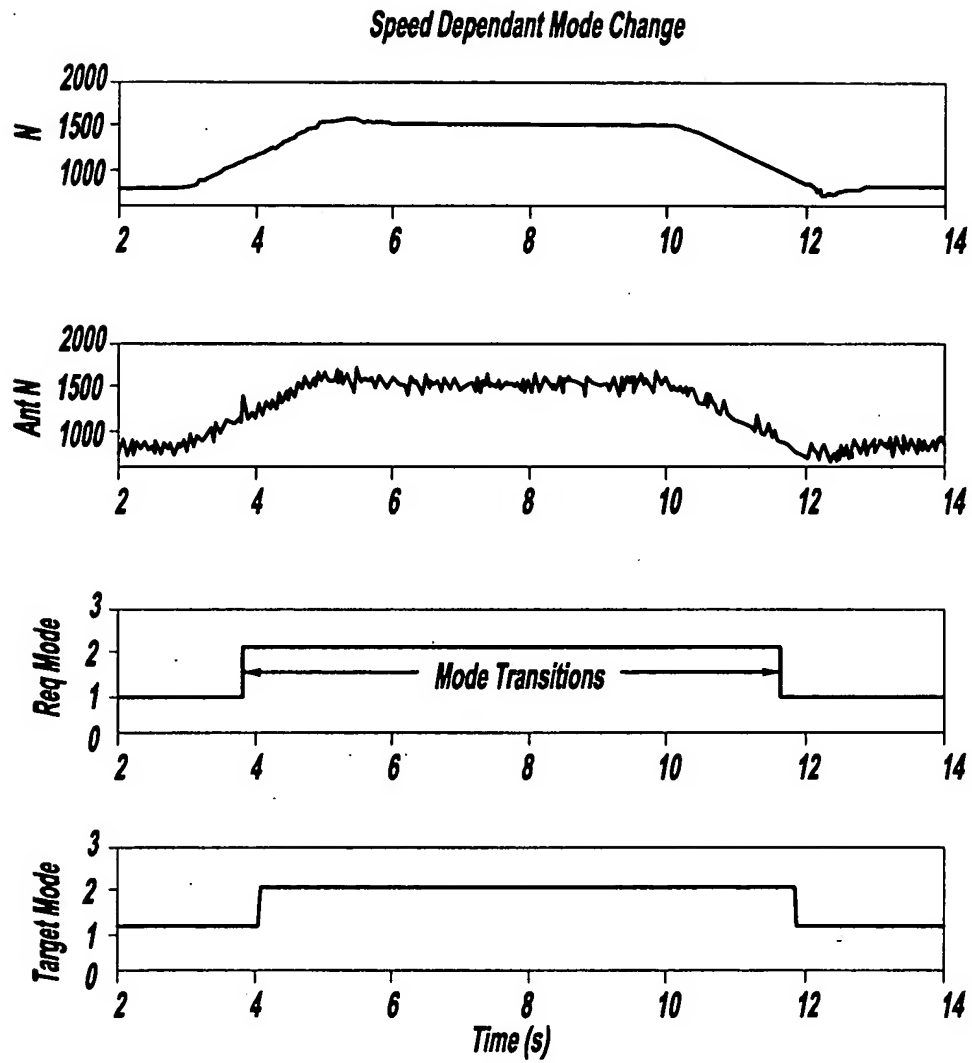


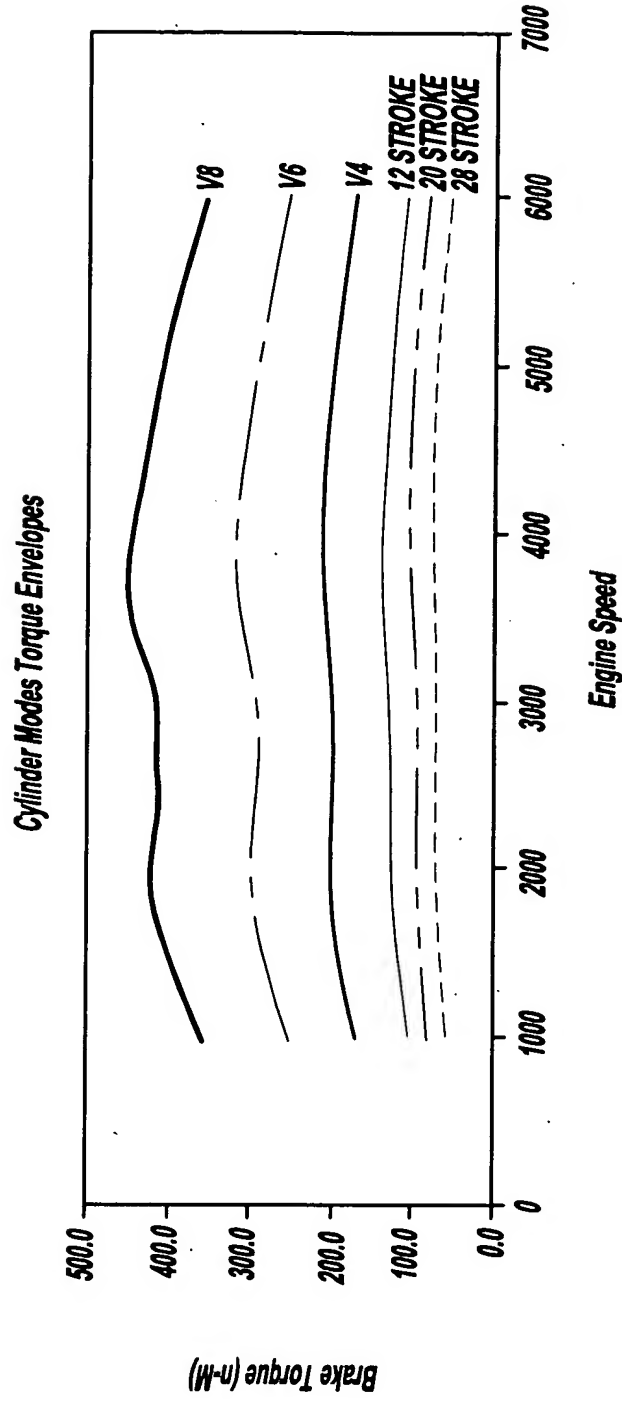
**FIG - 26**



**FIG - 27**

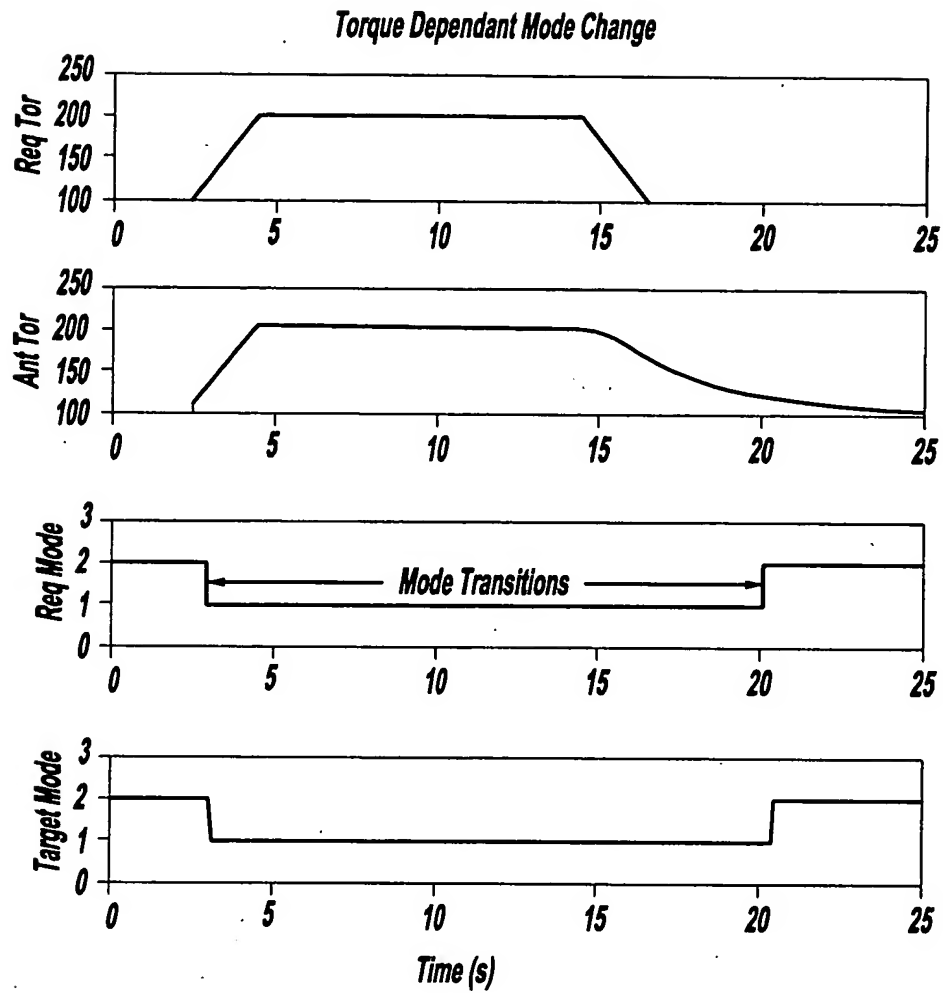


**FIG - 28**

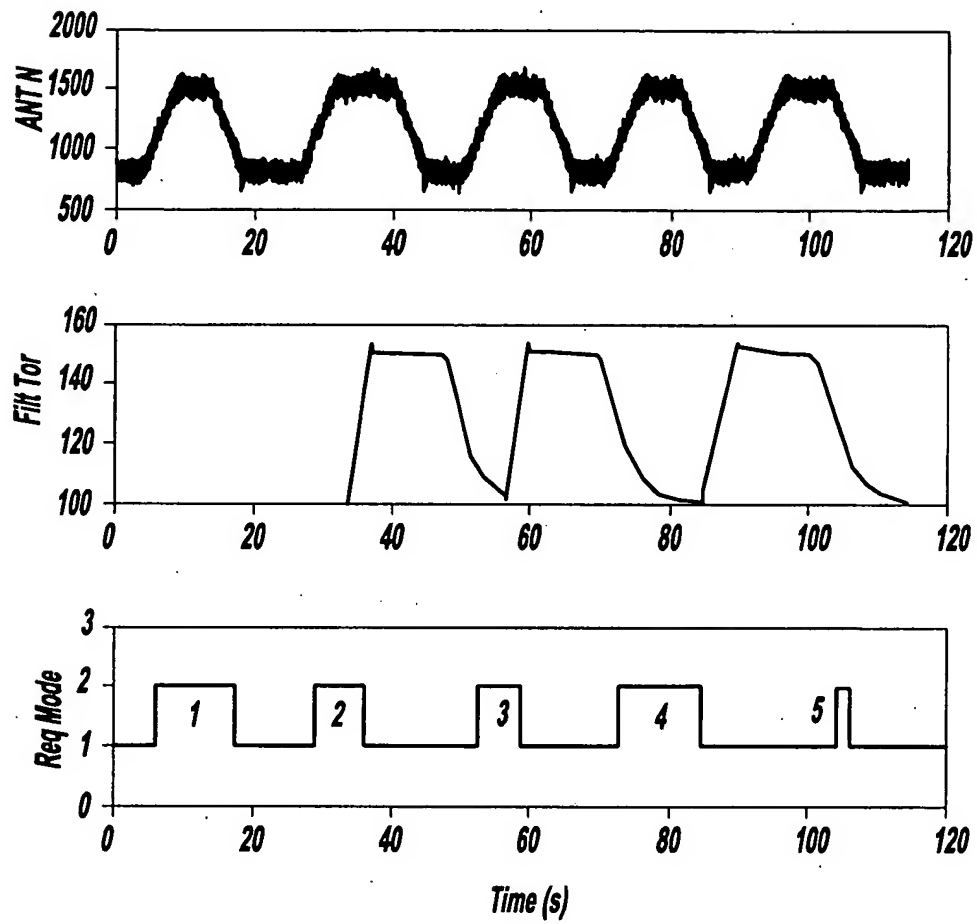


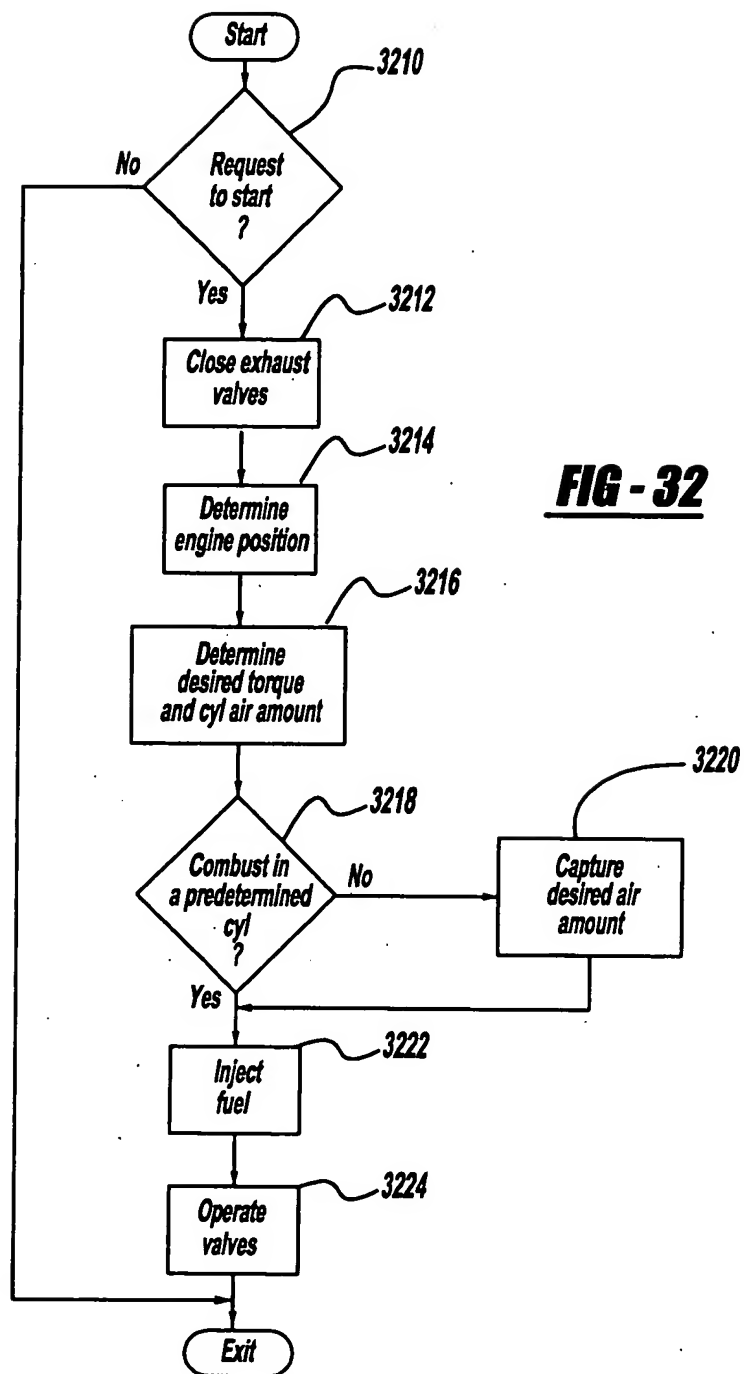
**FIG - 29**

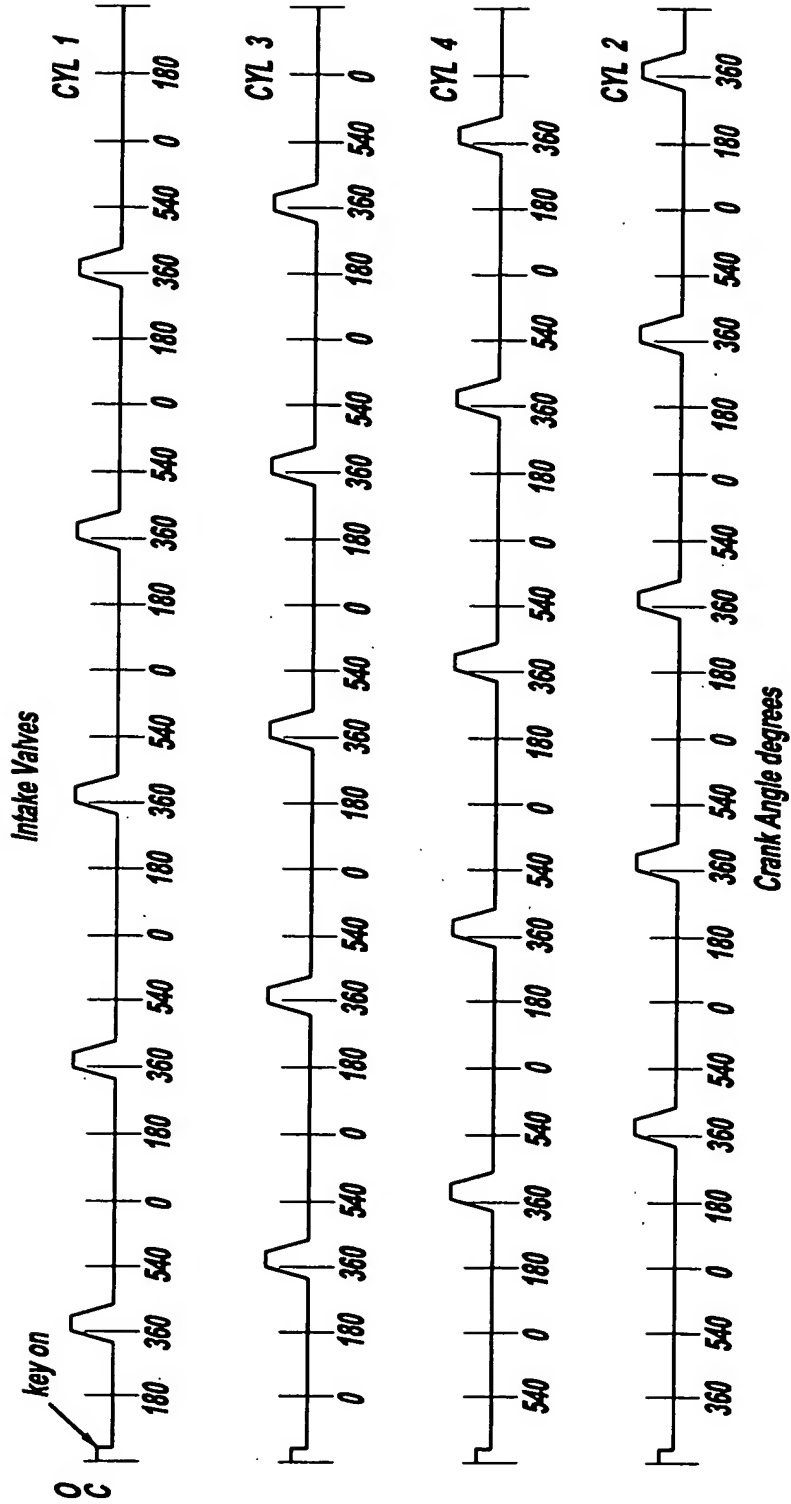
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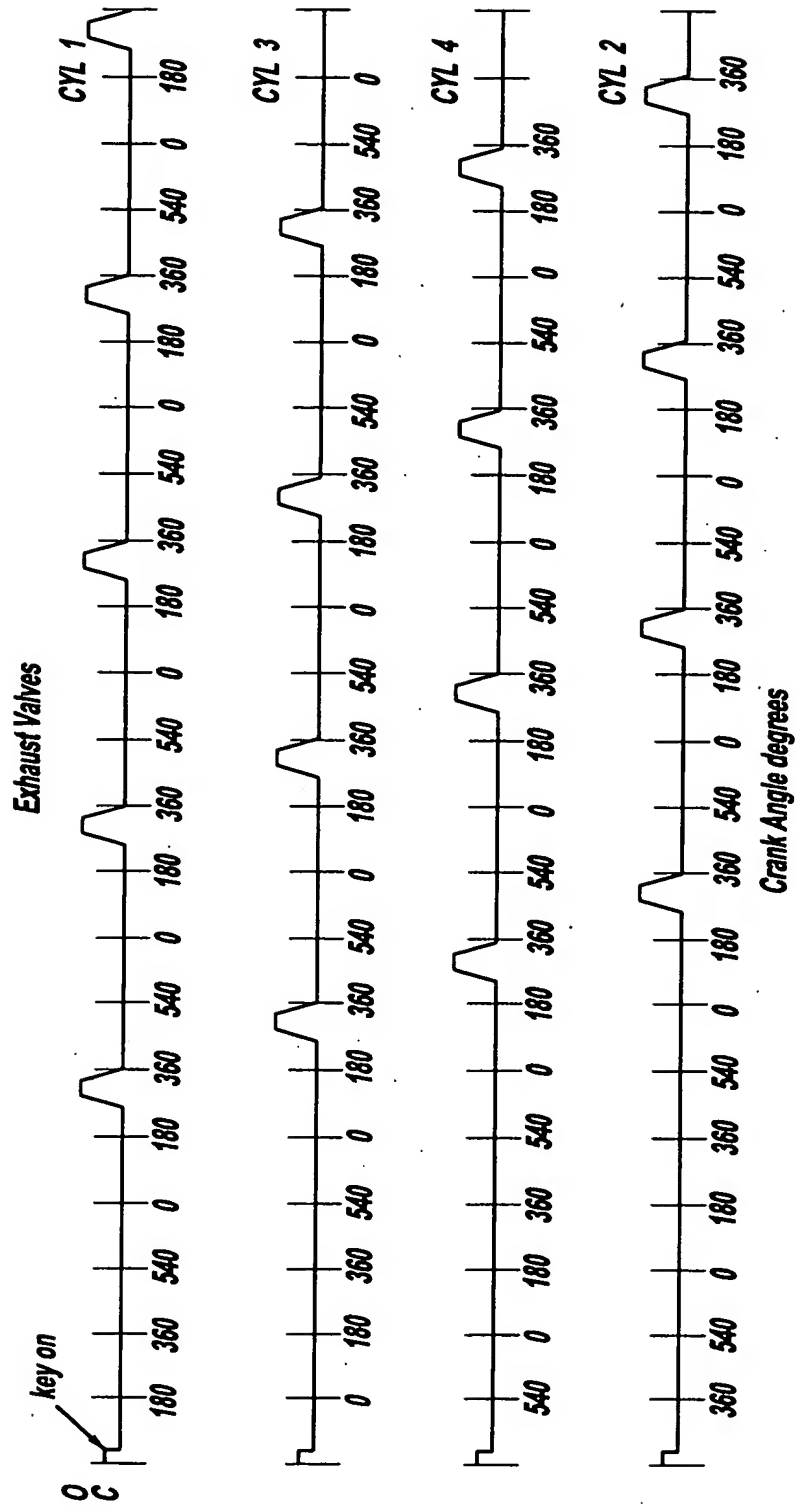
**FIG - 30**

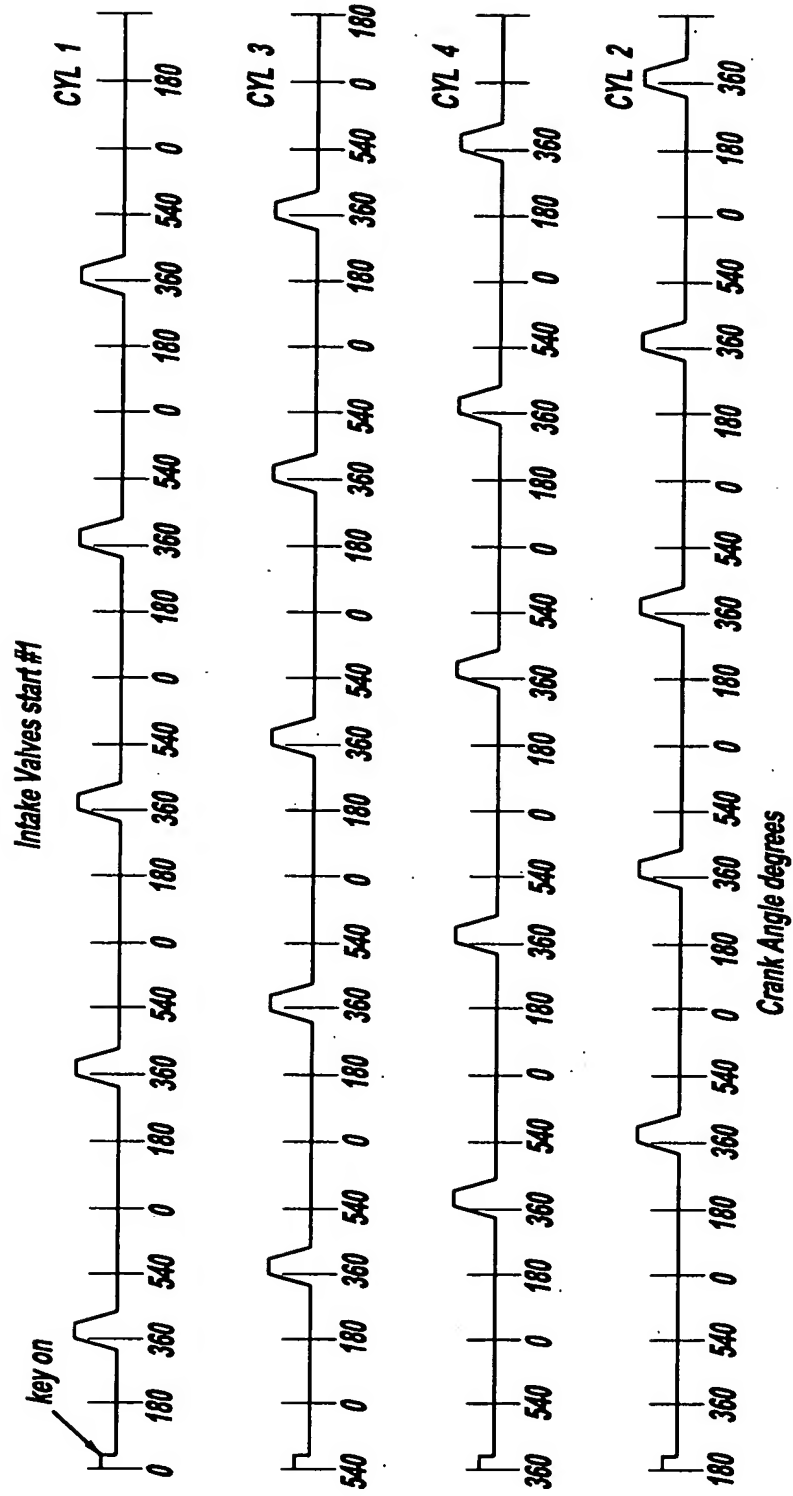
*Speed and Torque Dependant Mode Changes***FIG - 31**





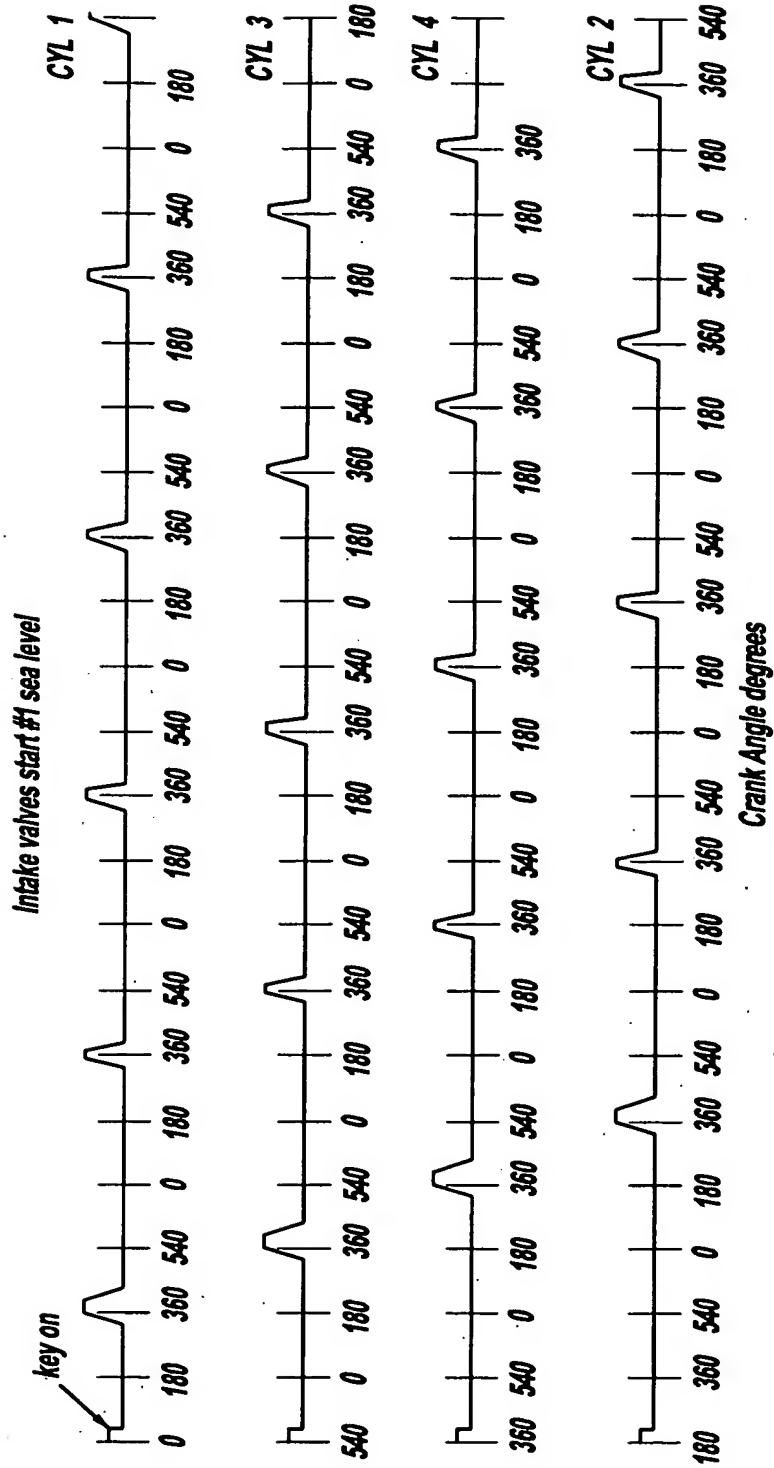
**FIG - 33a**

**FIG - 33b**

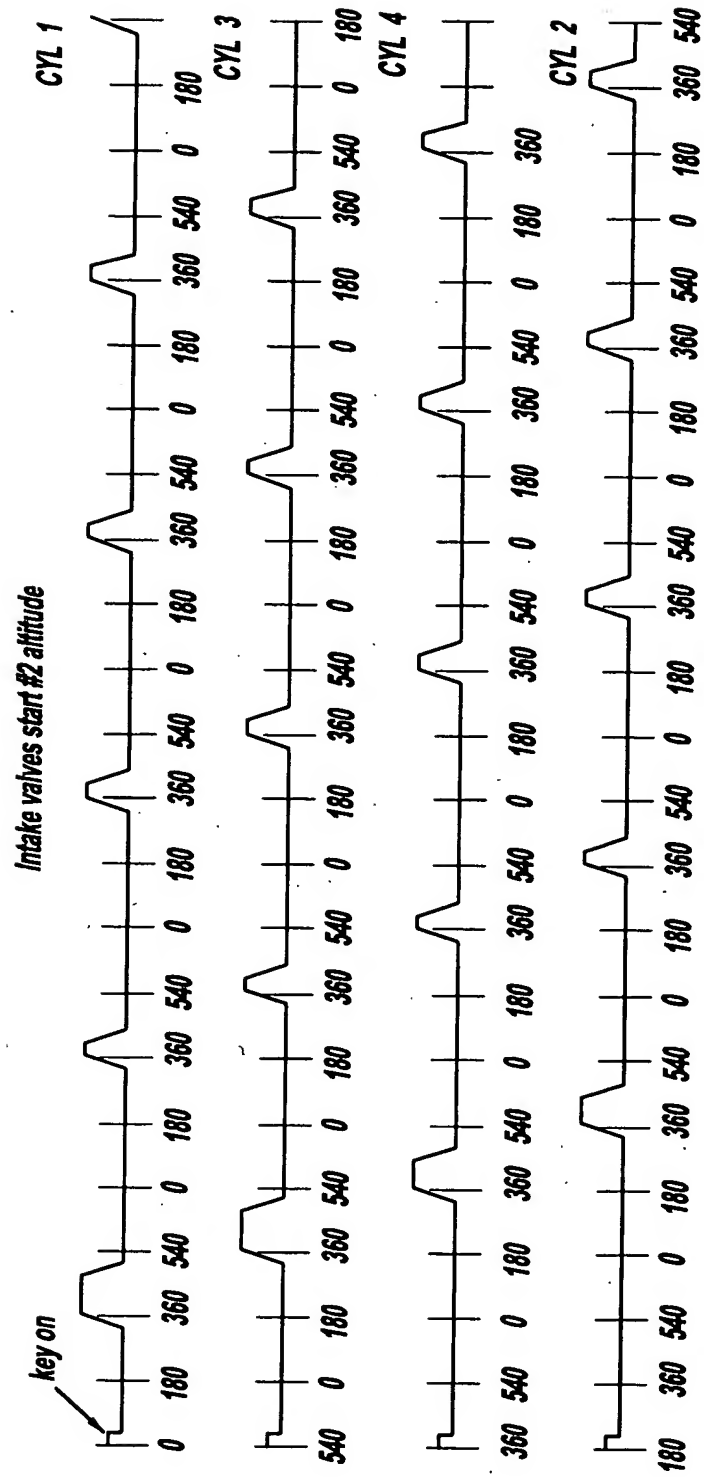
**FIG - 34a**

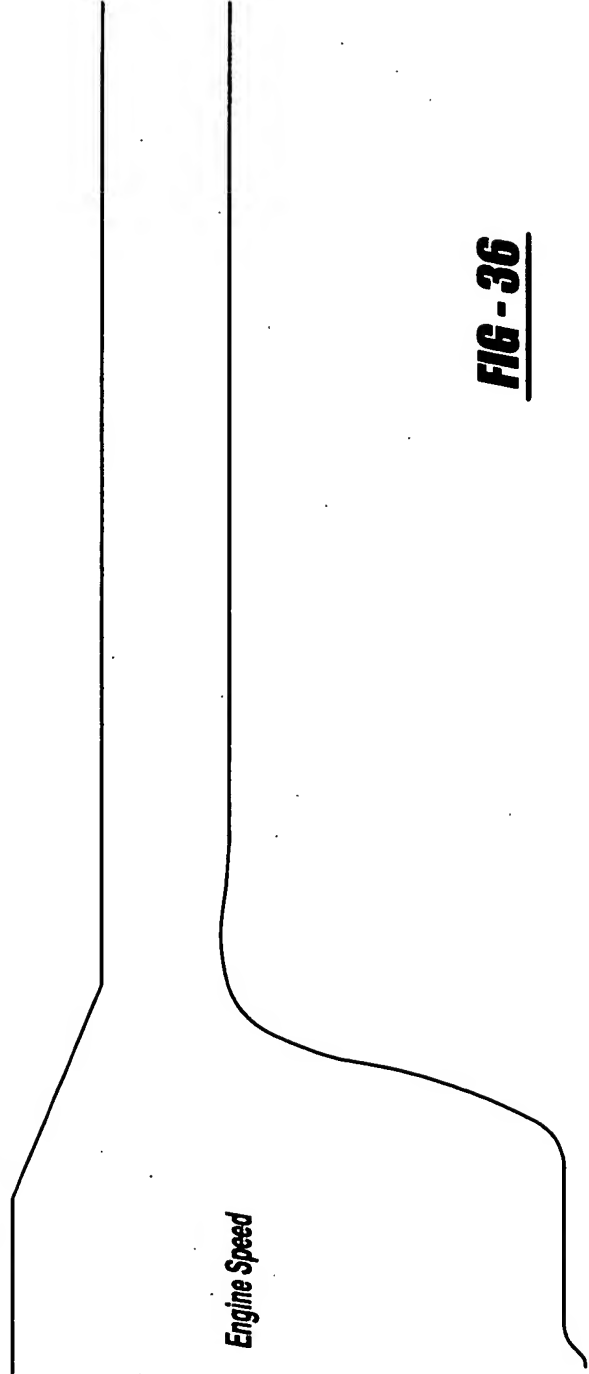
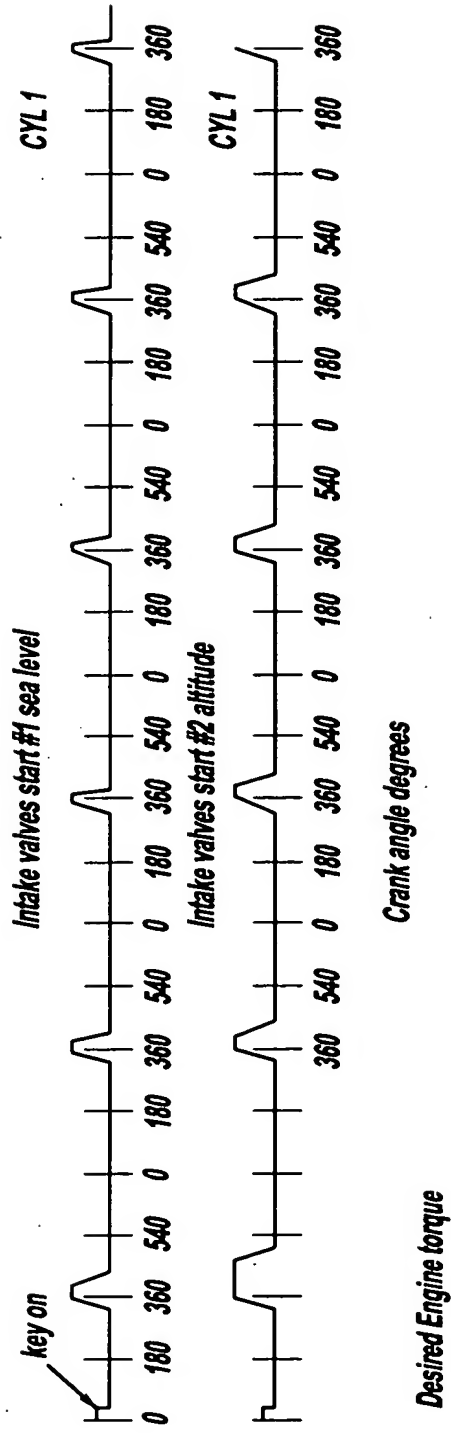




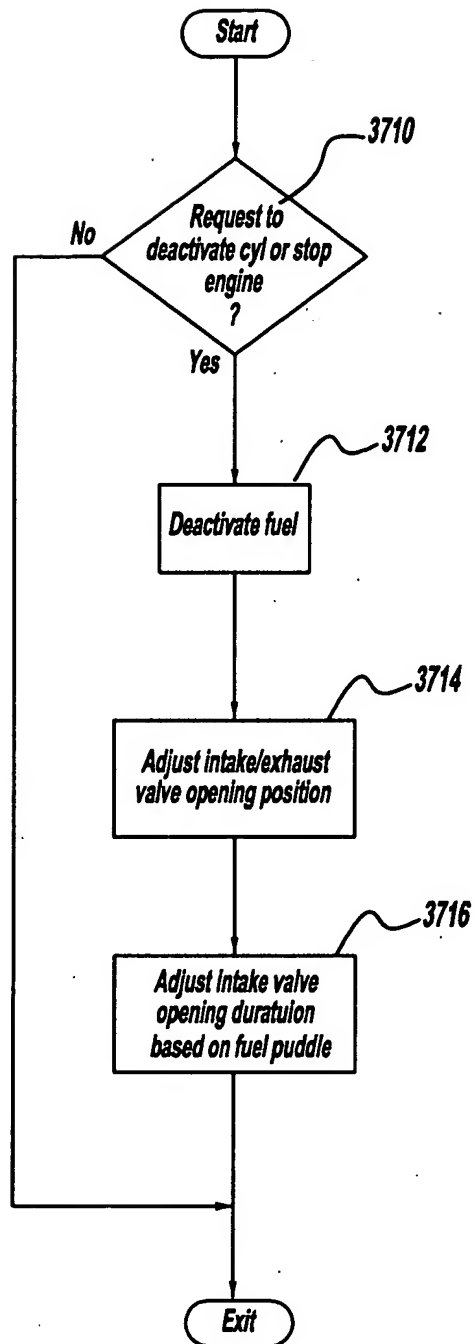


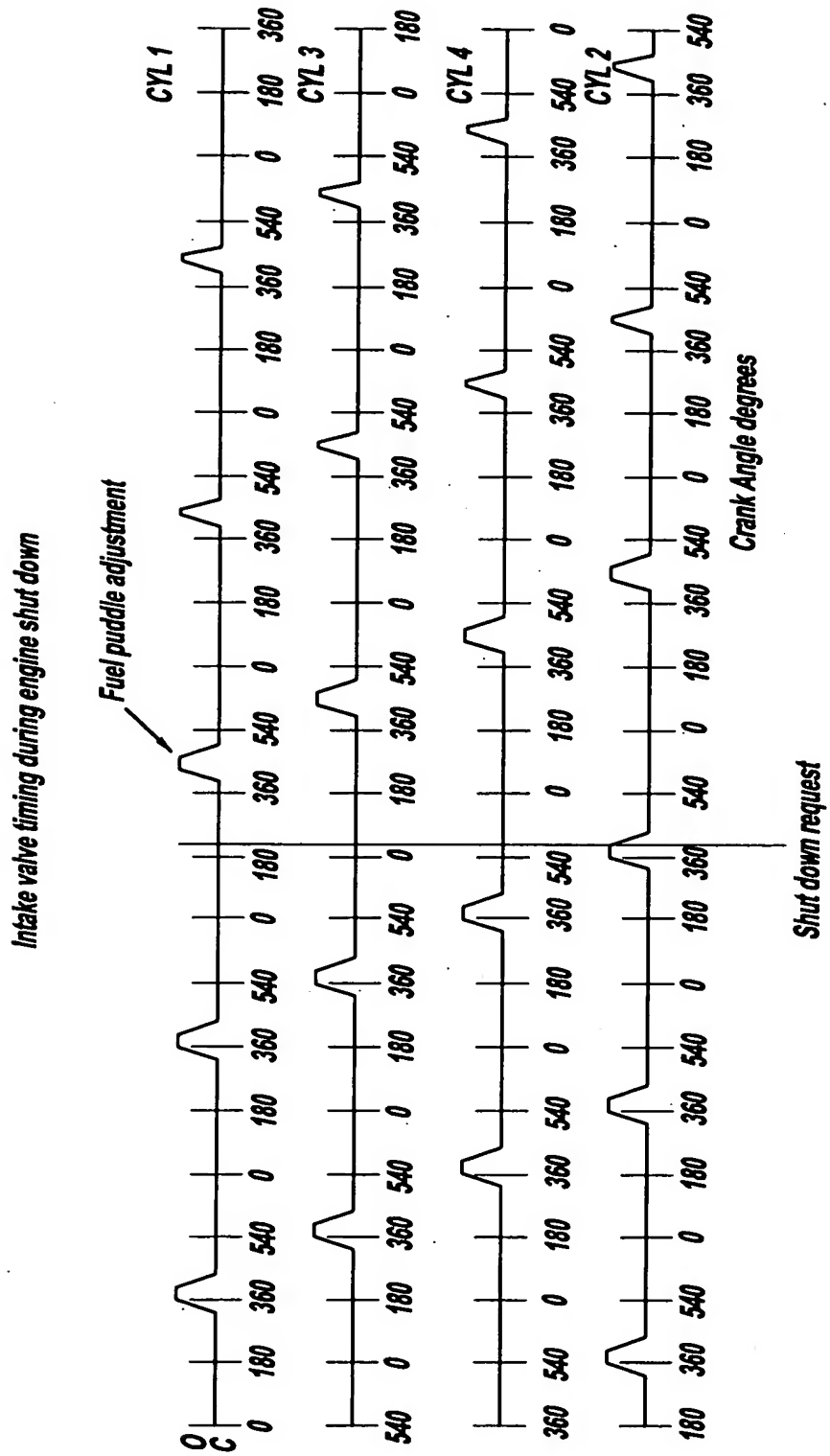
**FIG - 35a**

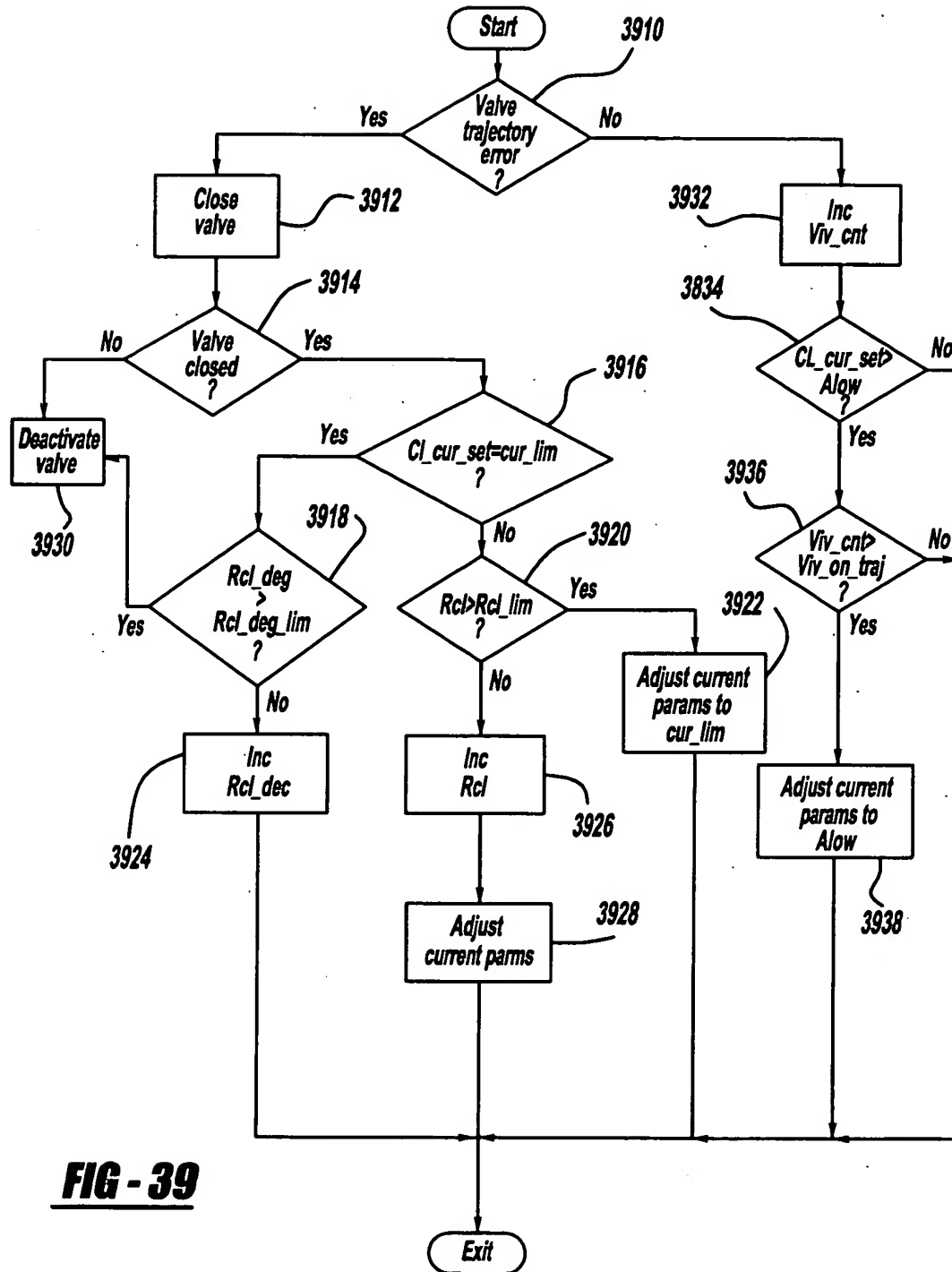
**FIG - 35b**

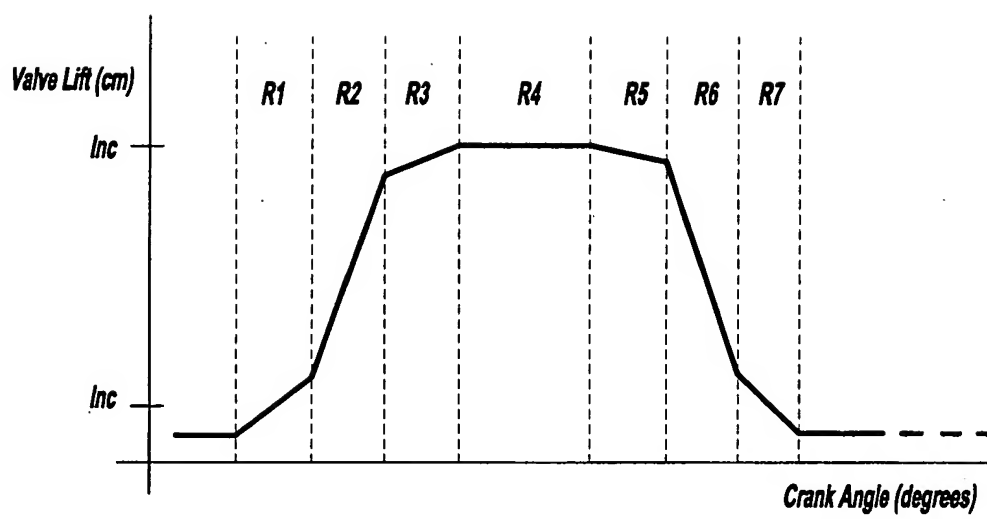


**FIG - 36**

**FIG - 37**

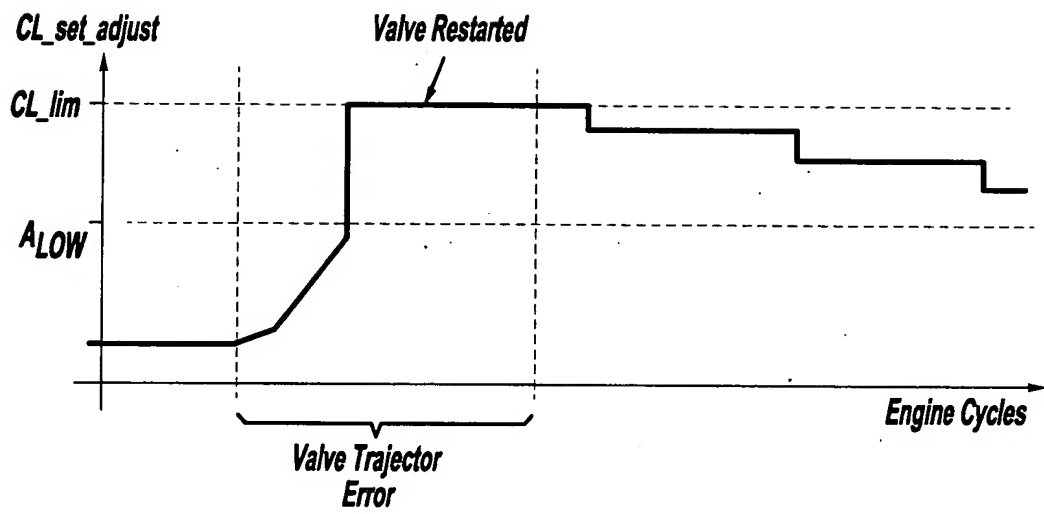
**FIG - 38**



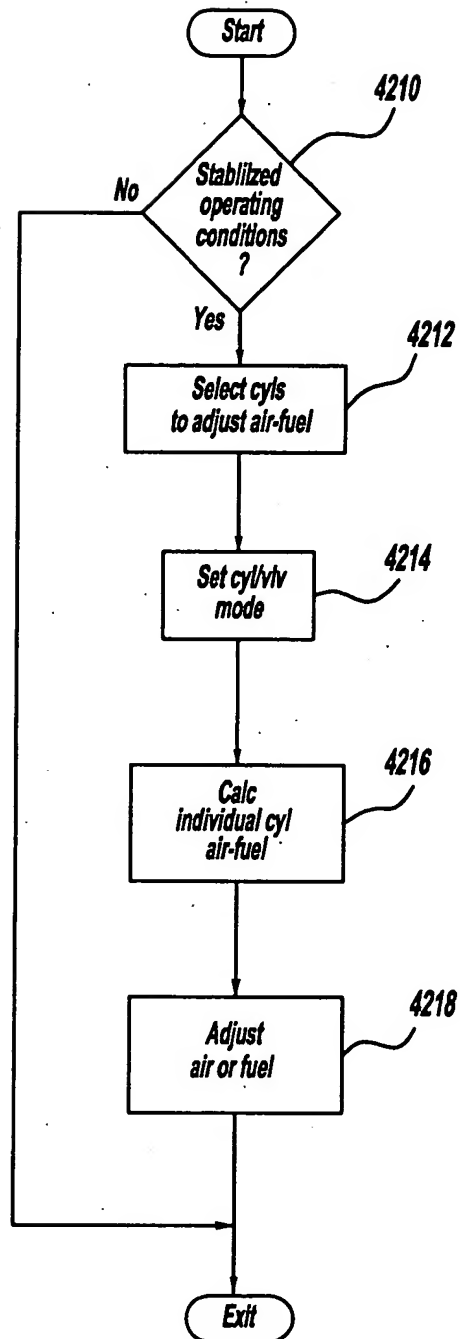


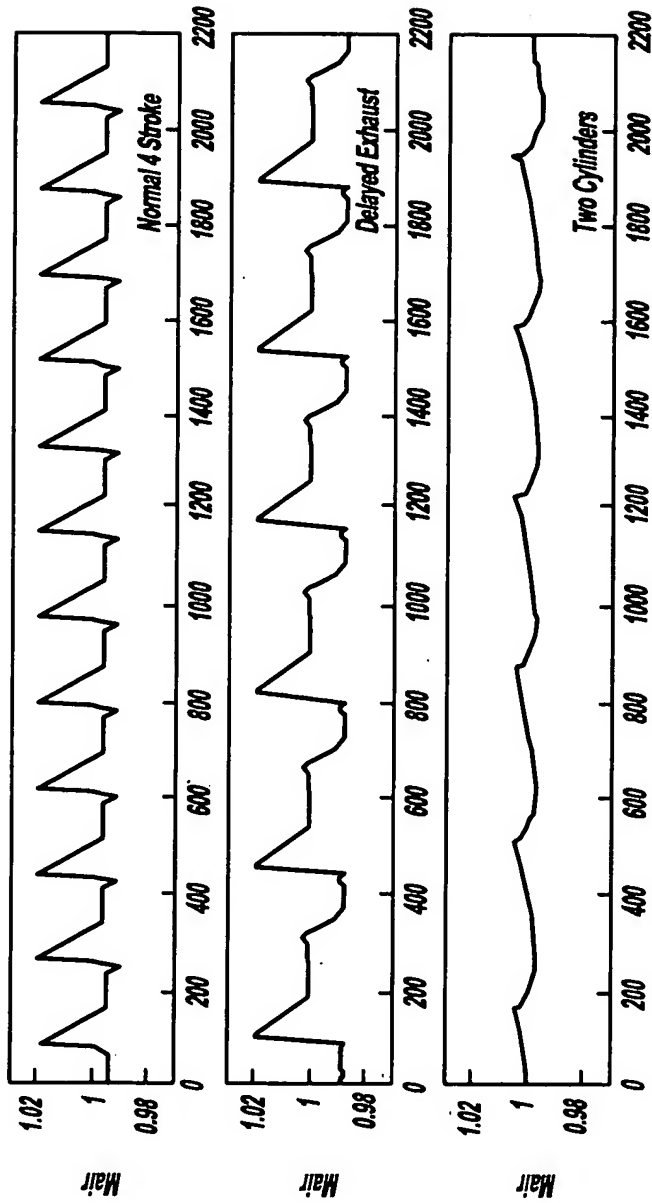
**FIG - 40**



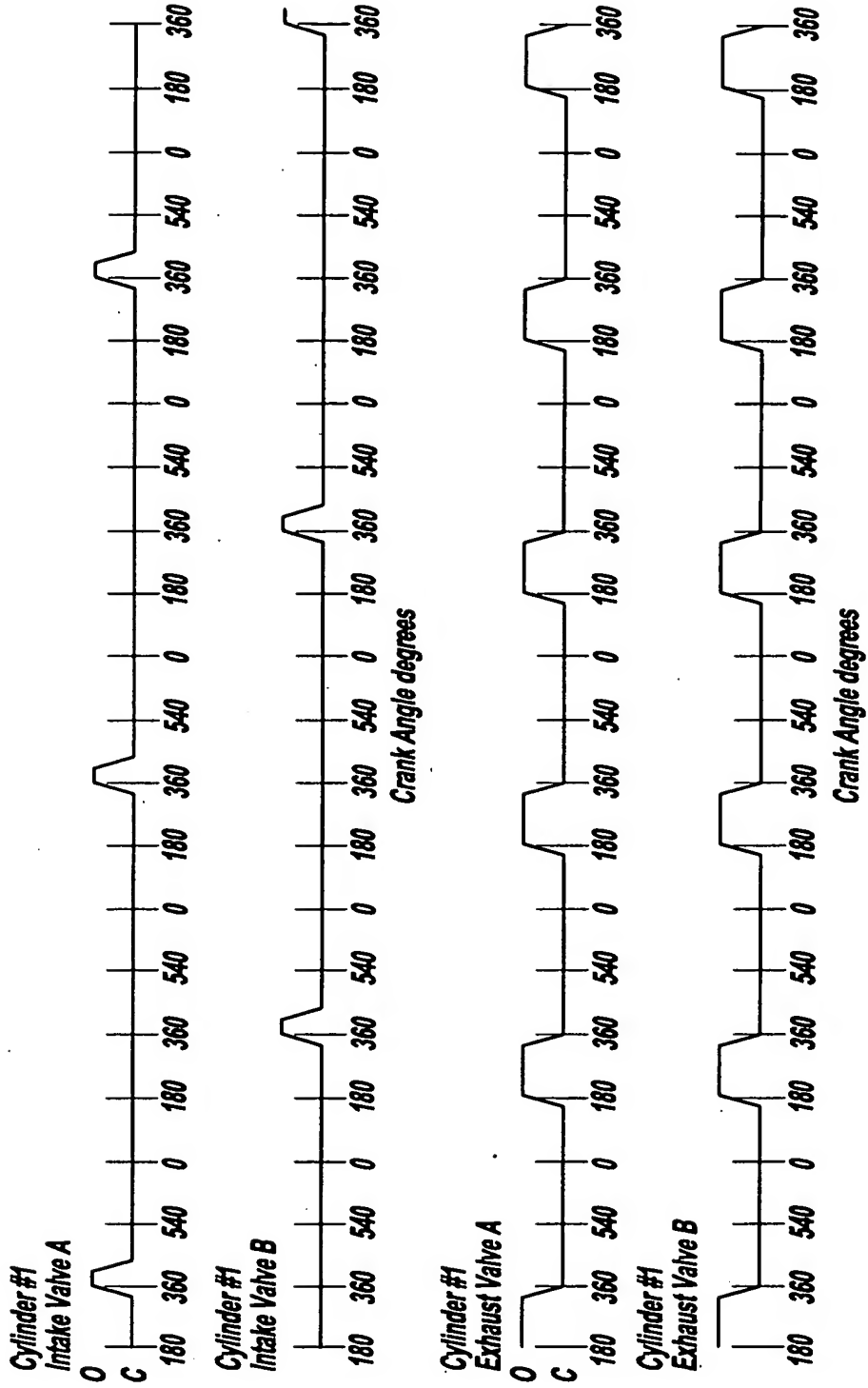


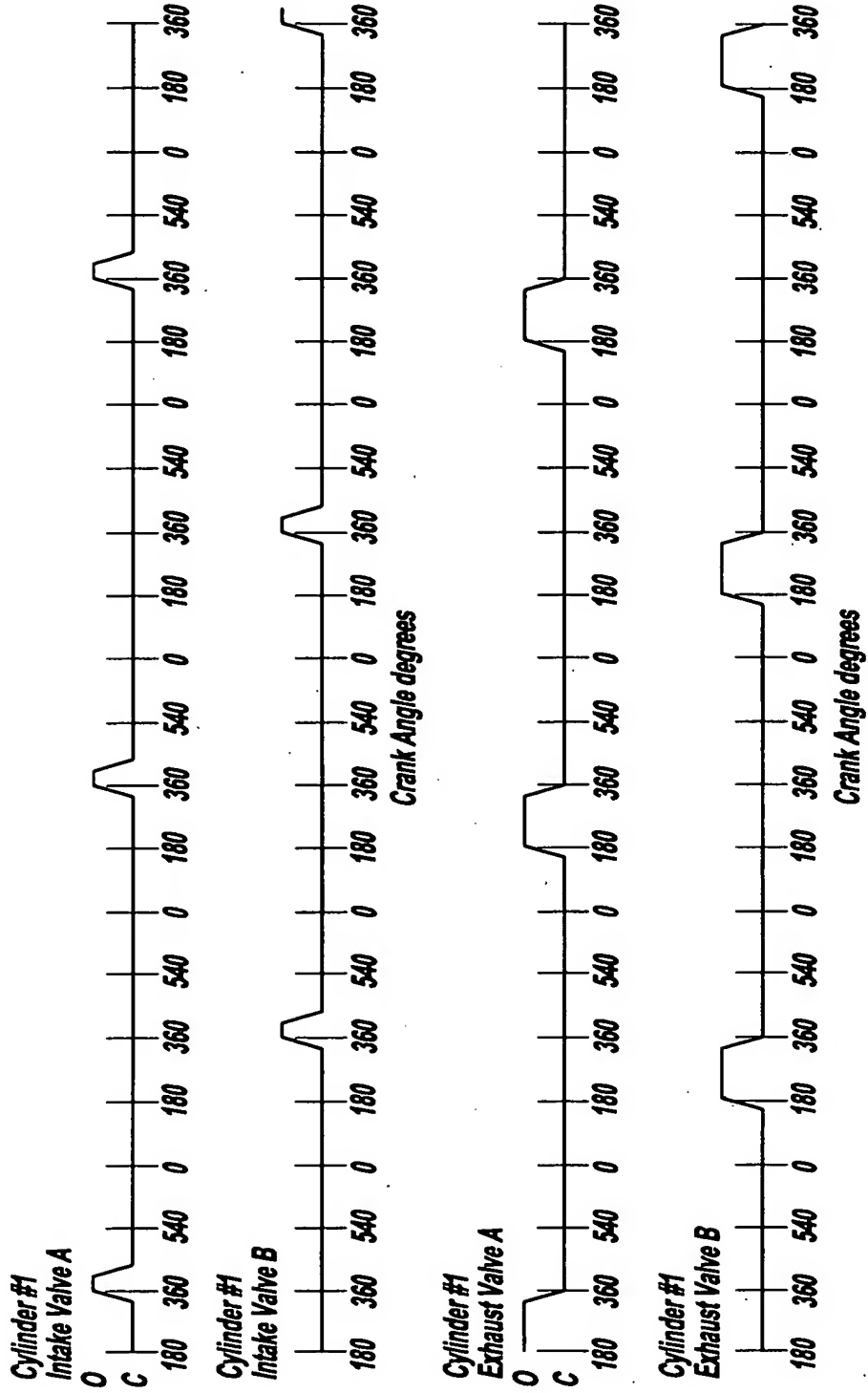
**FIG - 41**

**FIG - 42**

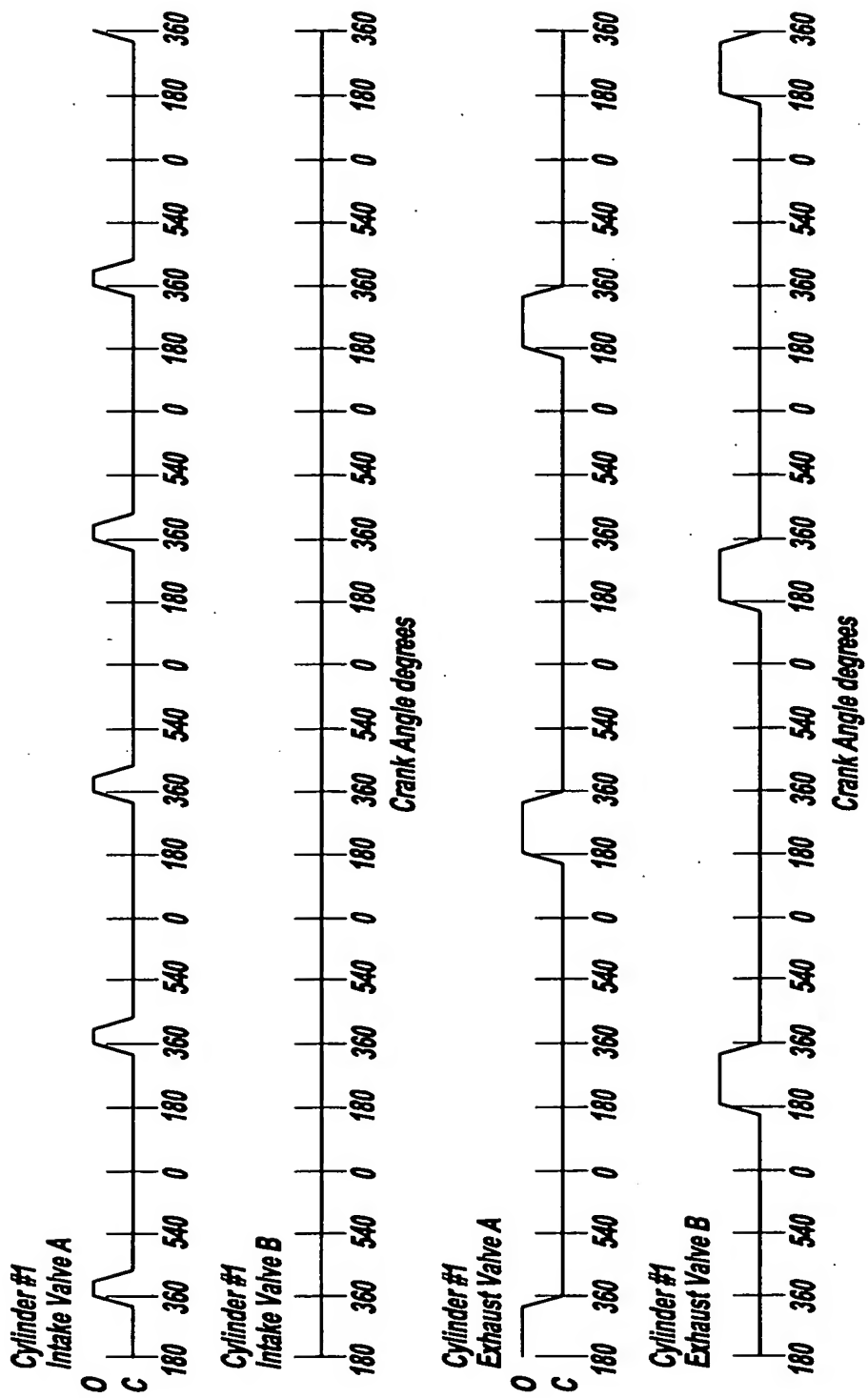


**FIG - 43**

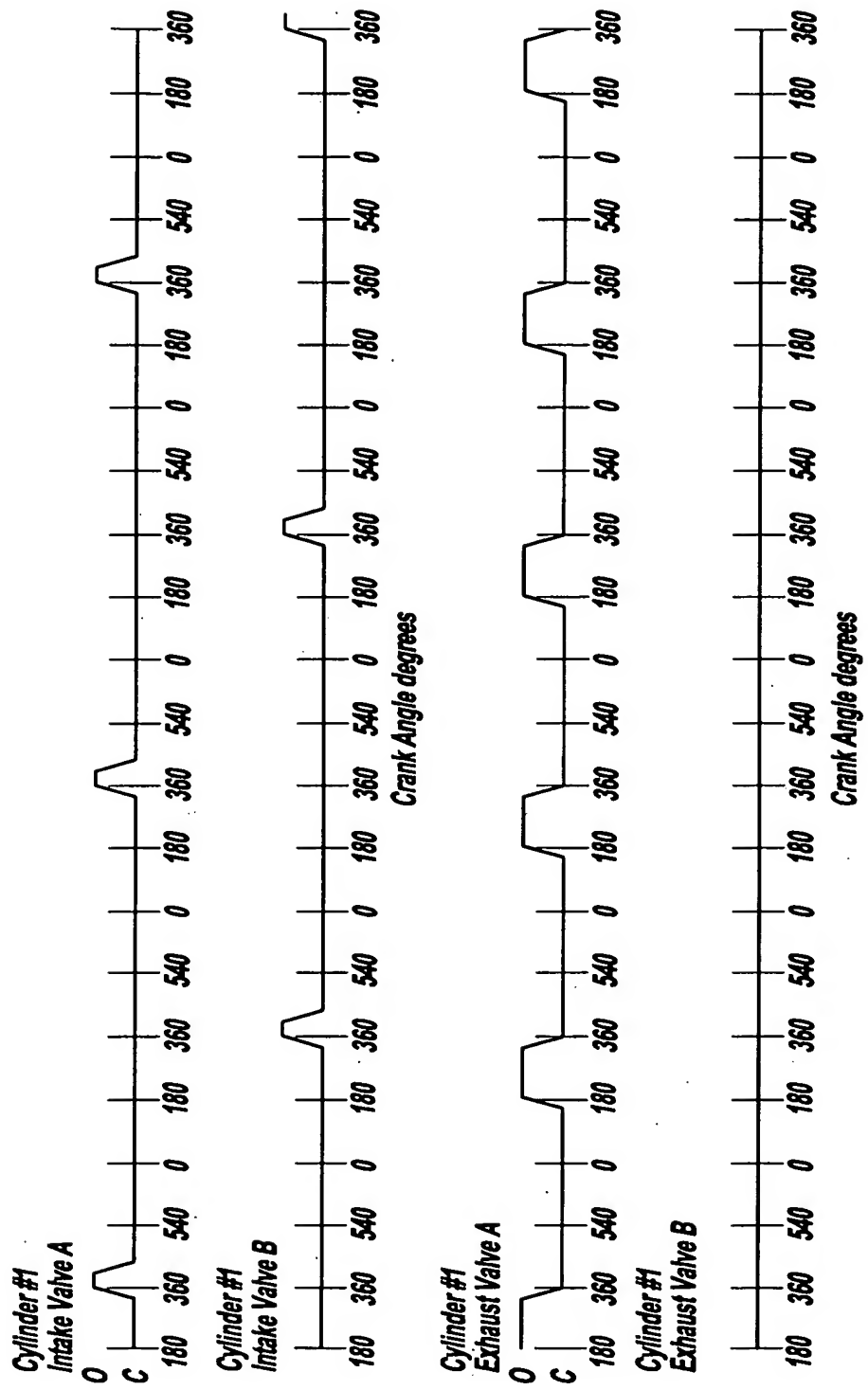
**FIG - 44**



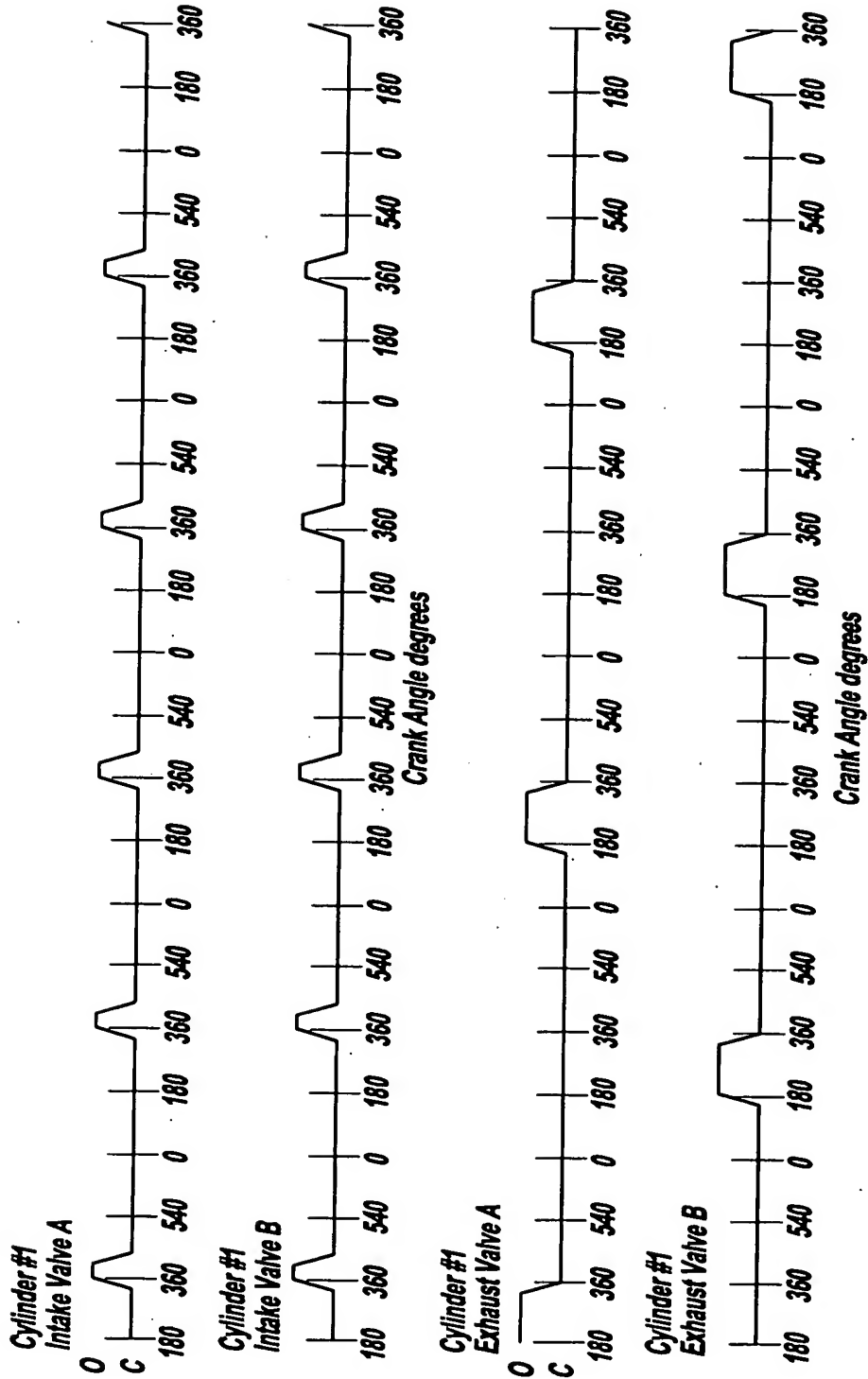
**FIG - 45**



**FIG - 46**

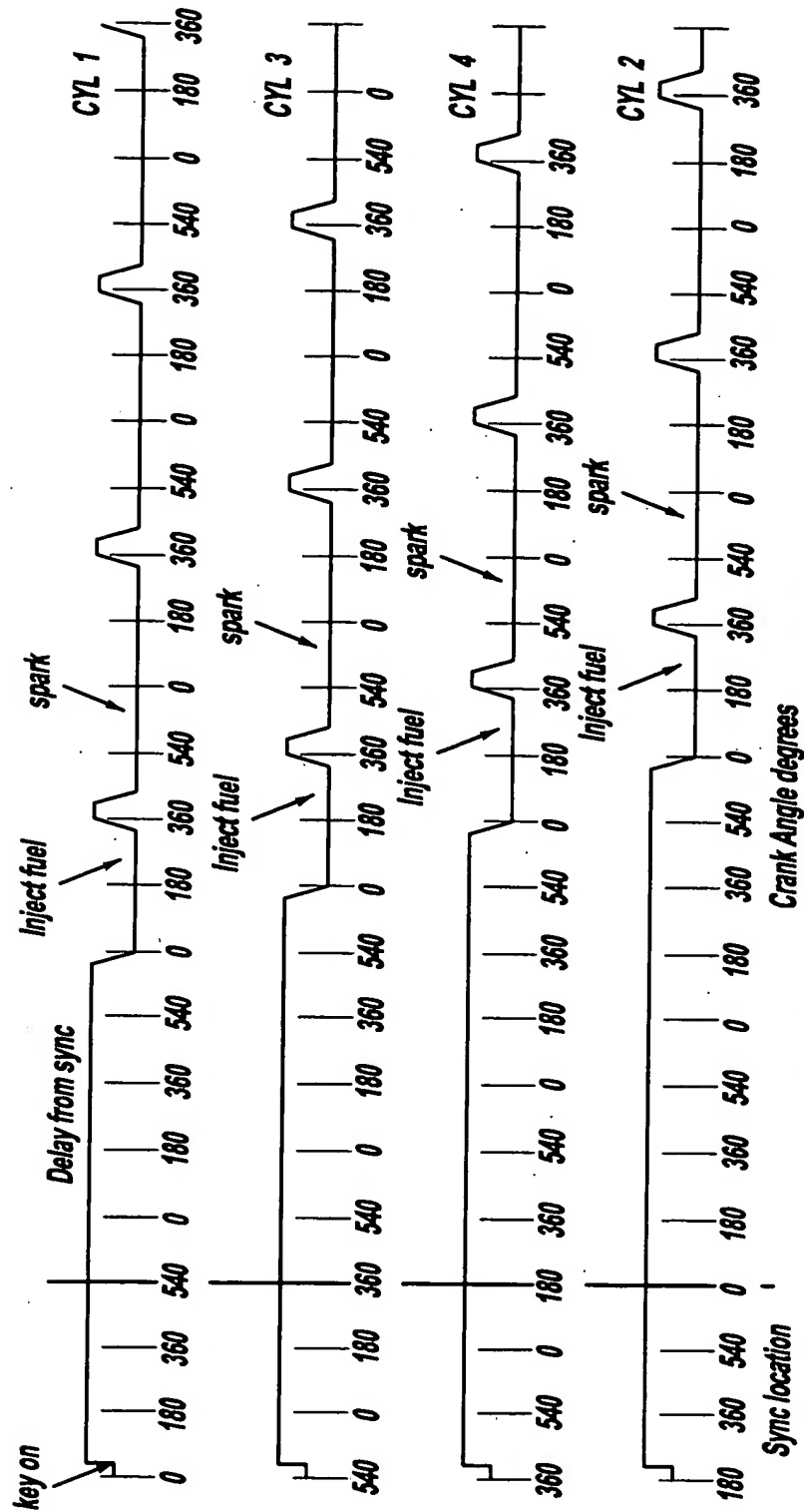


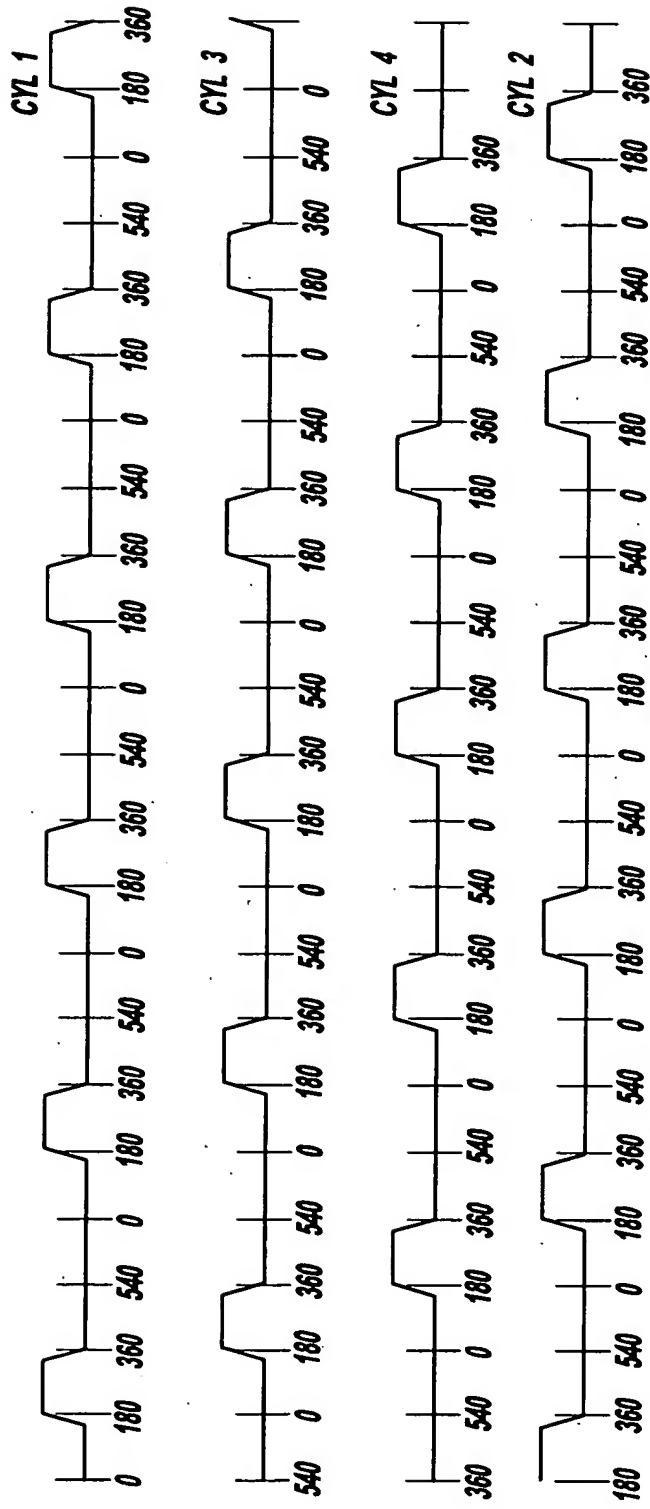
**FIG - 47**



**FIG - 48**



**FIG - 49a**

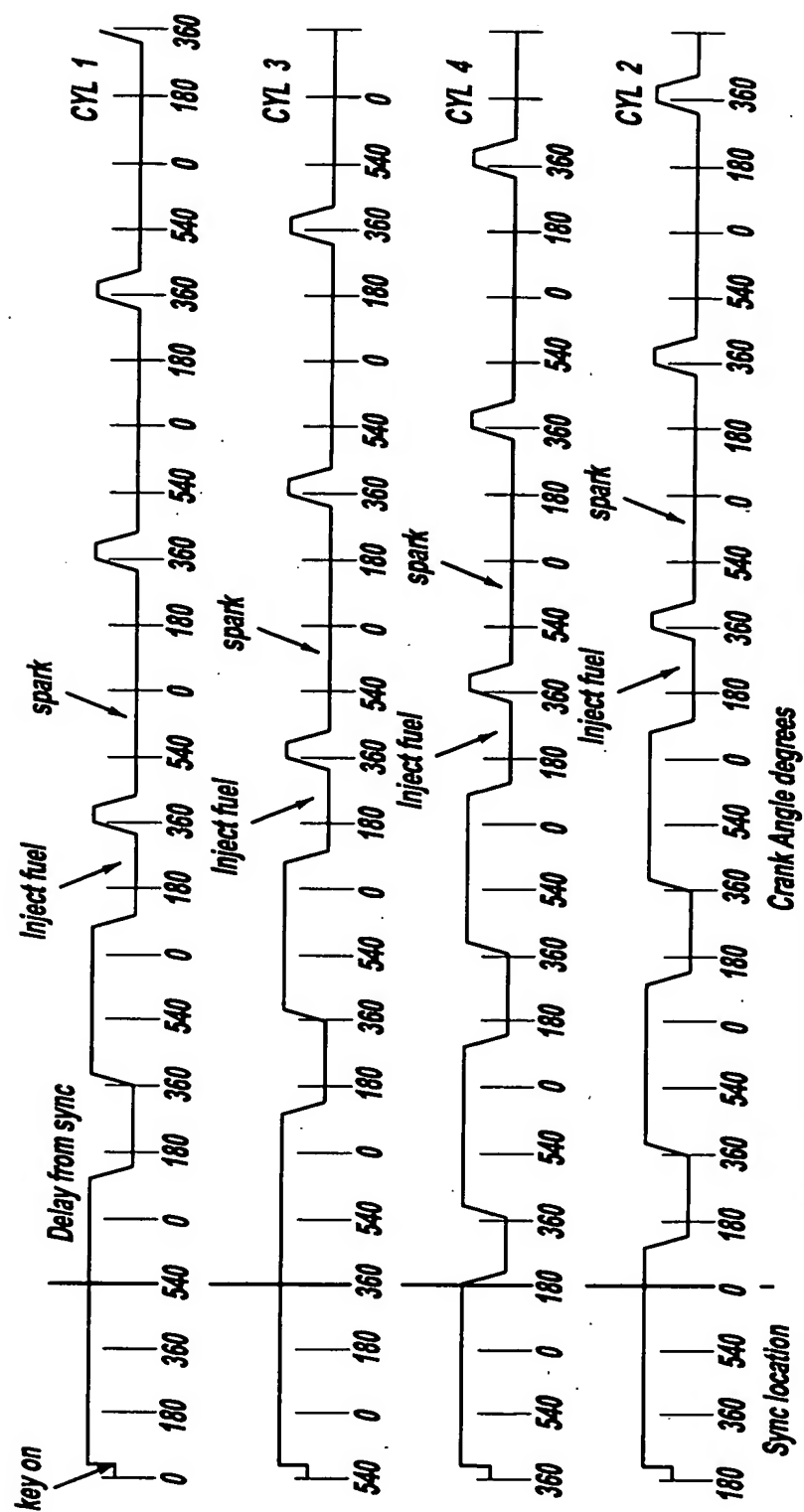


Crank Angle degrees  
Exhaust Valve Timing From Start (mechanical valve operation)

Cylinder piston position cyl 1 & 4

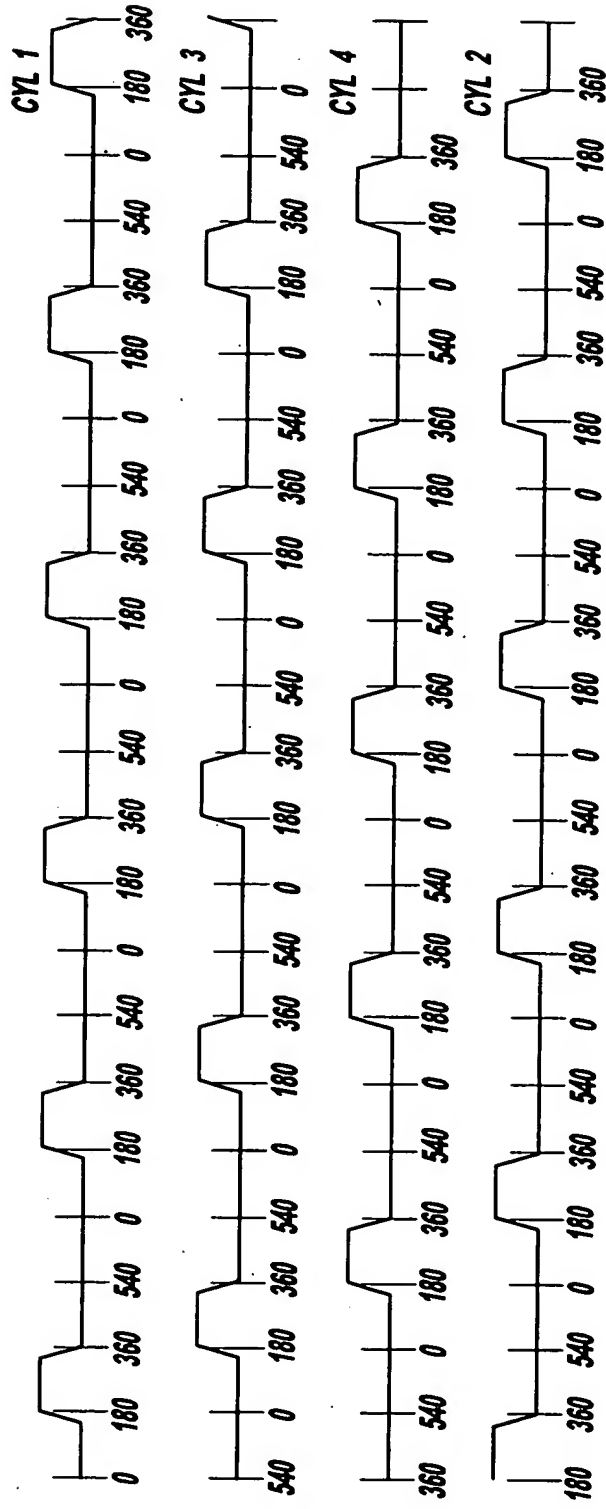
Cylinders 2 & 3

**FIG - 49b**



Intake Valve Timing From Start (electrical valve operation)

**FIG - 50a**

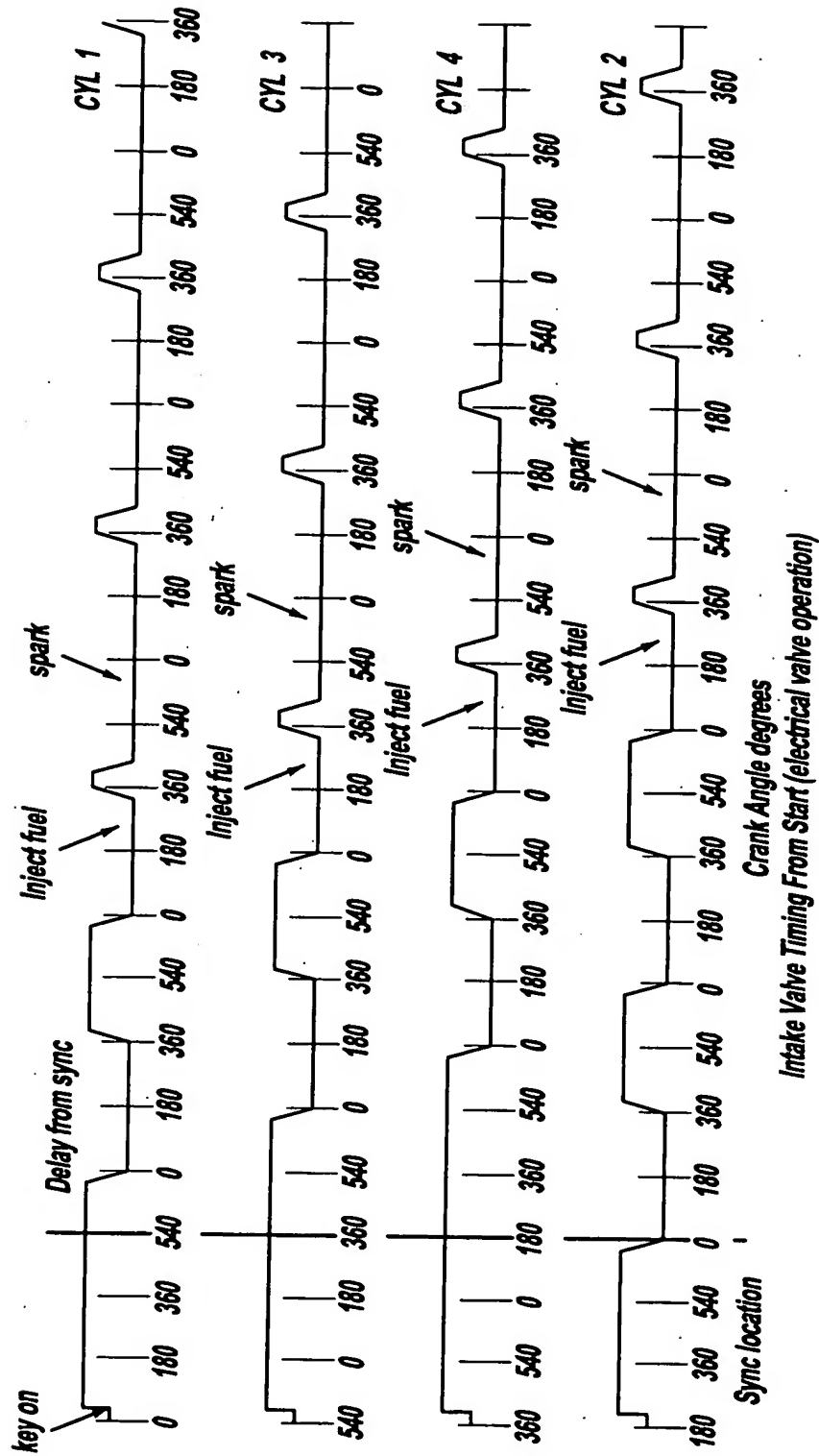


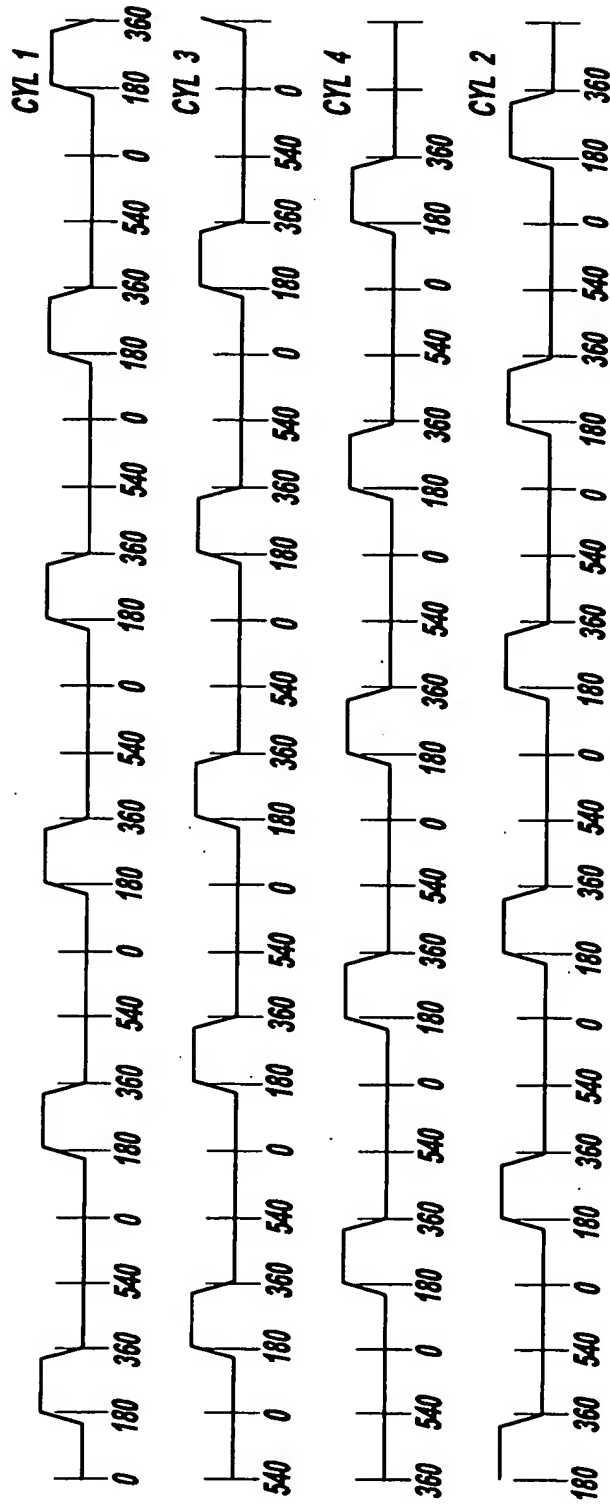
Crank Angle degrees  
Exhaust Valve Timing From Start (mechanical valve operation)

Cylinder piston position cyl 1 & 4

Cylinders 2 & 3

**FIG - 50b**

**FIG - 51a**



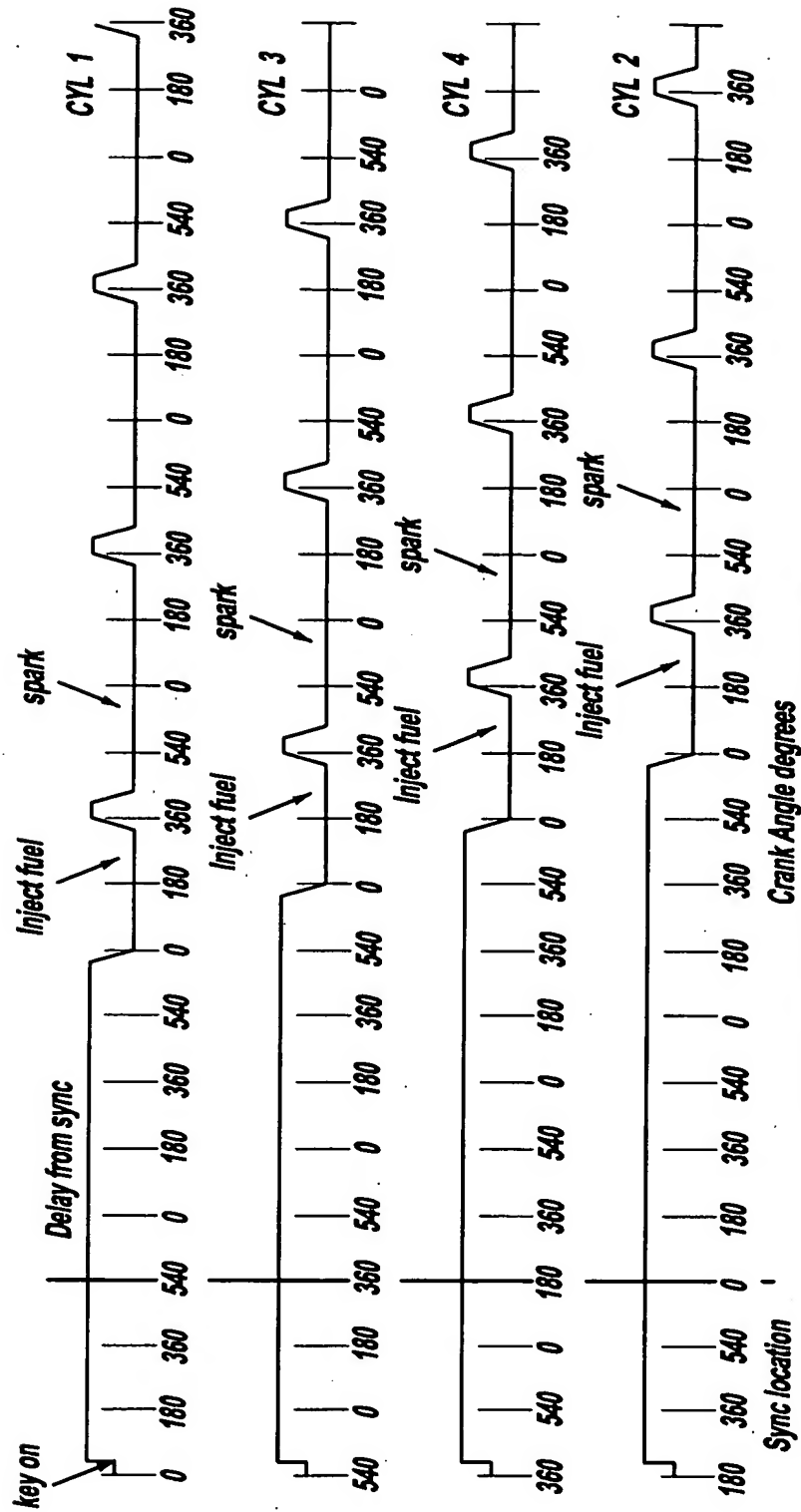
Crank Angle degrees

Exhaust Valve Timing From Start (mechanical valve operation)

Cylinder piston position cyl 1 & 4

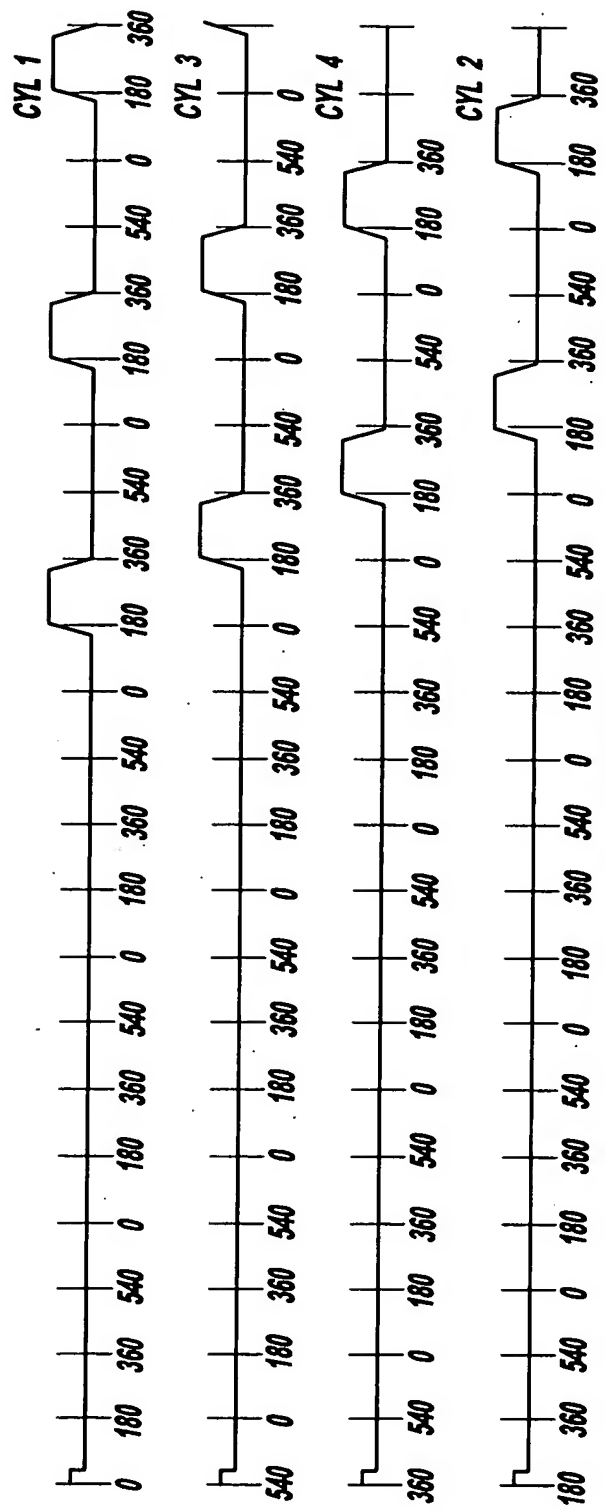
Cylinders 2 & 3

**FIG - 51b**



Crank Angle degrees  
Intake Valve Timing From Start (electrical valve operation)

**FIG - 52a**



Crank Angle degrees  
Exhaust Valve Timing From Start (electrical valve operation)

Cylinder piston position cyl 1 & 4

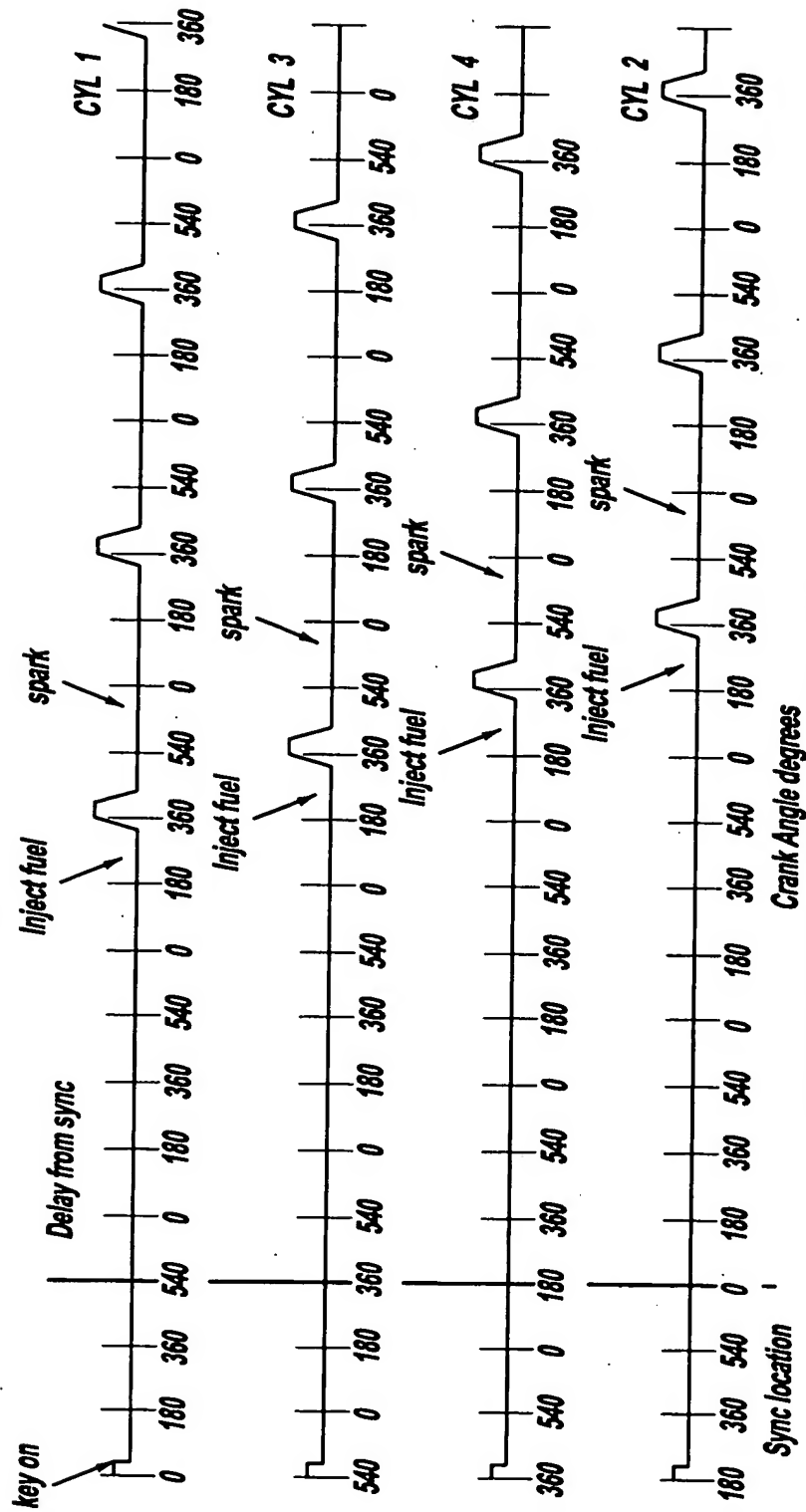


Cylinders 2 & 3



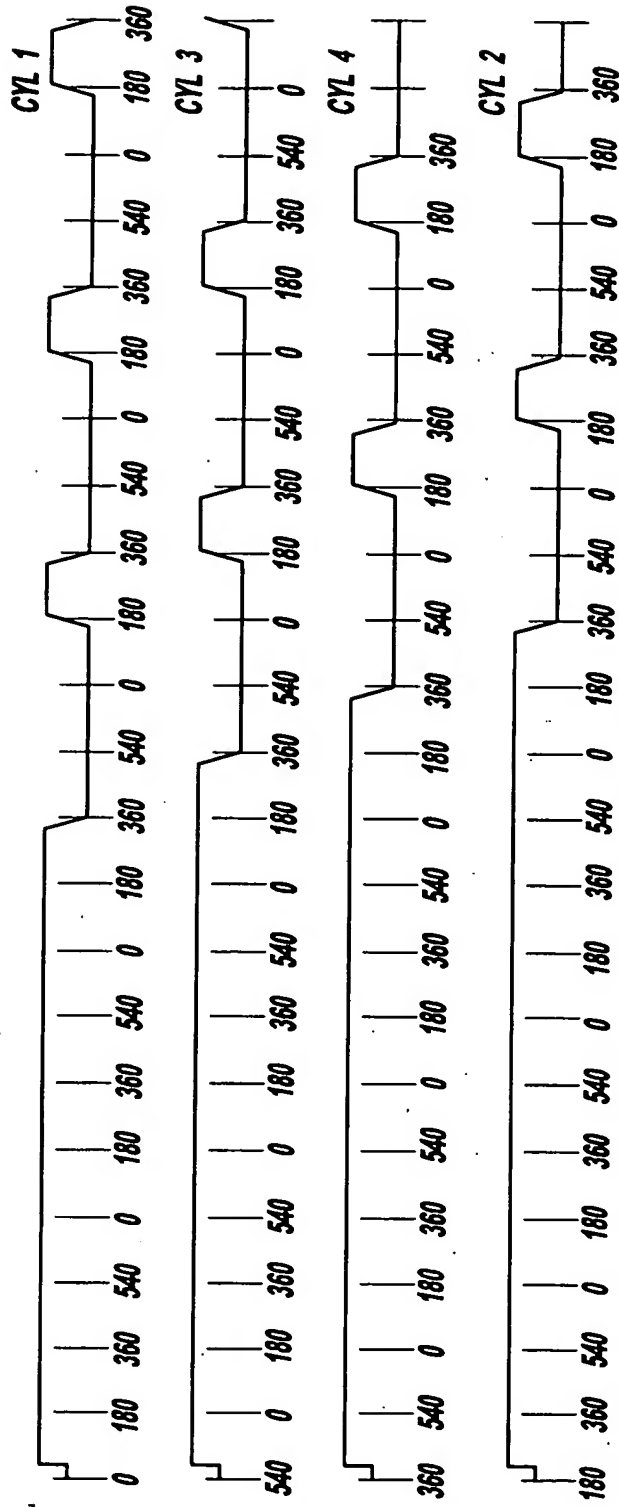
**FIG - 52b**





Crank Angle degrees  
Intake Valve Timing From Start (electrical valve operation)

**FIG - 53a**

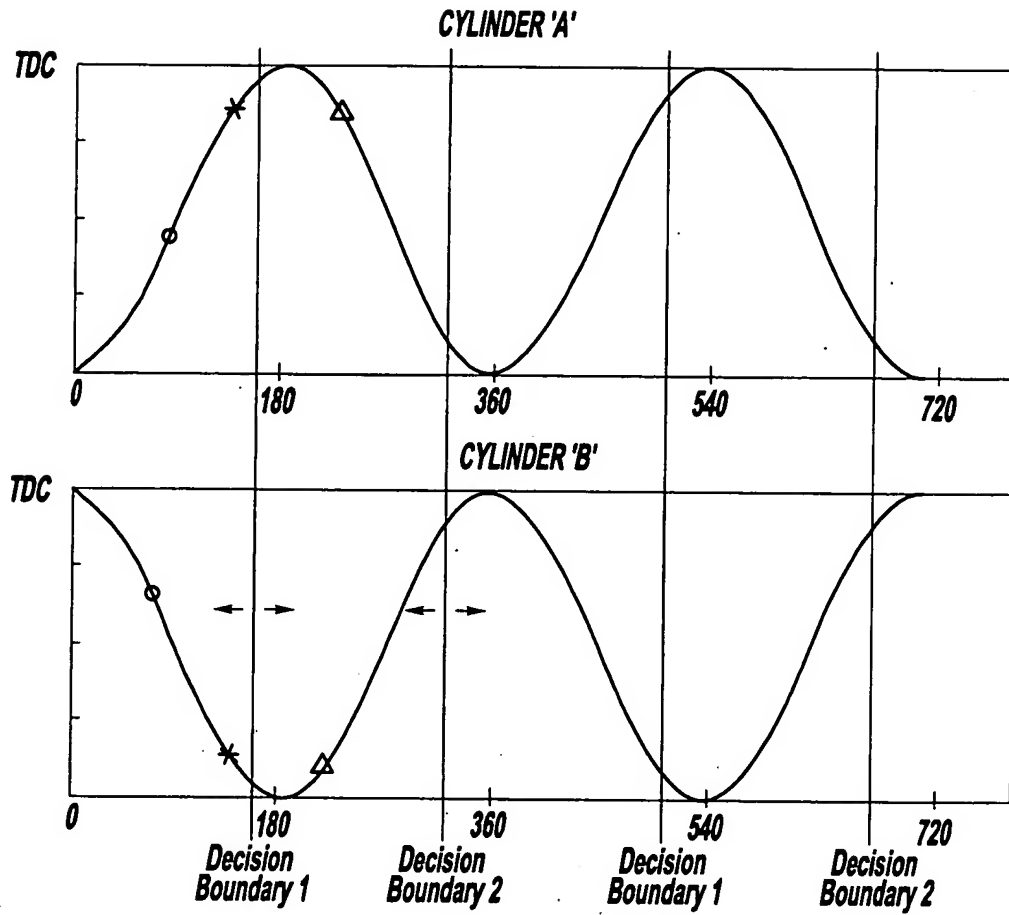


Crank Angle degrees  
Exhaust Valve Timing From Start (electrical valve operation)

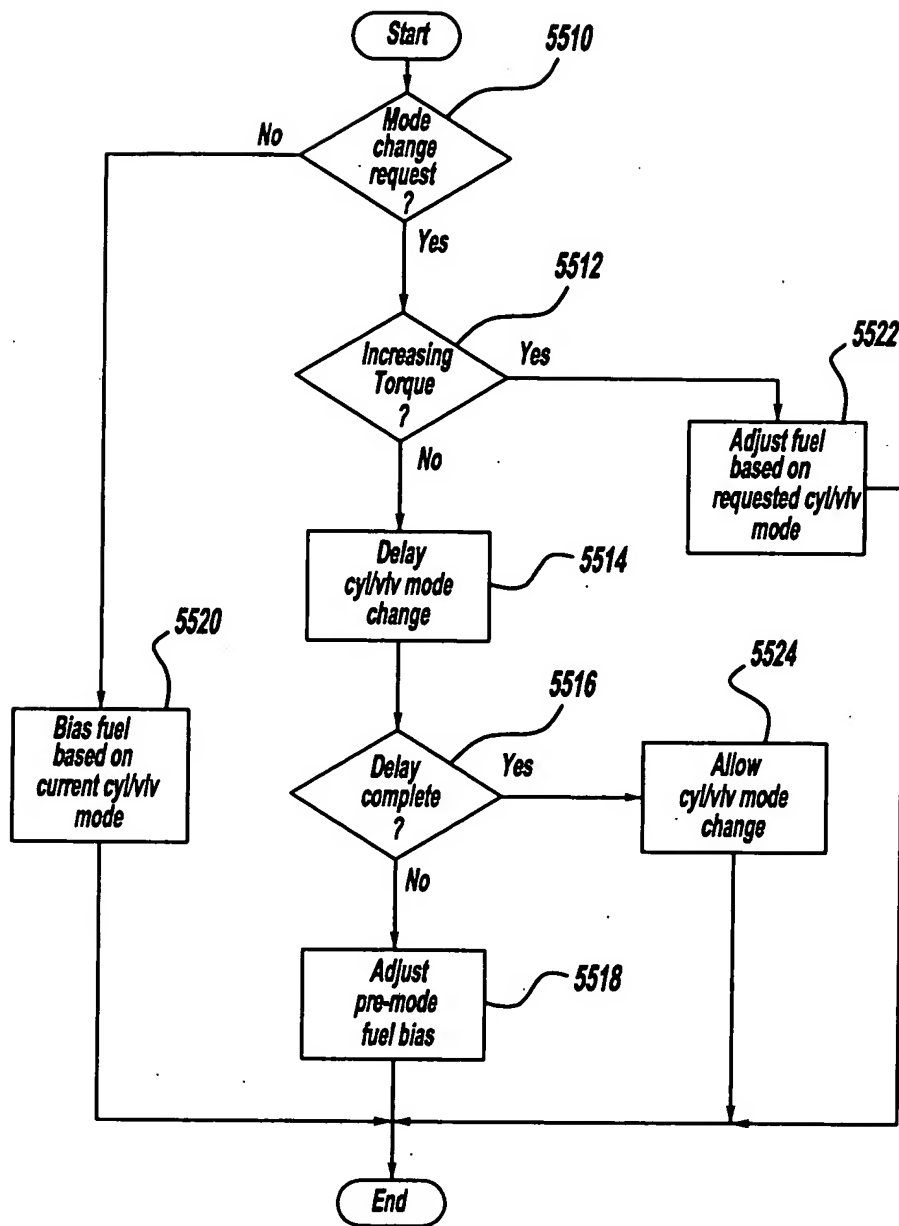
Cylinder piston position cyl 1 & 4

Cylinders 2 & 3

**FIG - 53b**



**FIG - 54**

**FIG - 55**